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Media Aid on Website of Pakistani UAV Manufacturing Company

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Media Aid: Website of Pakistani UAV Manufacturer Integrated Dynamics

The official website of Pakistani company Integrated Dynamics carries detailed information about its products, which includes unmanned aerial vehicles, flight control systems, antenna tracking systems, ground control stations and video and data downlinks.

URL: www.idaerospace.com

Source Affiliation: The website is the official site of Pakistani private sector defense manufacturing company Integrated Dynamics (ID). According to the "about us" section, the company is a "full-service UAV systems provider based in Karachi, Pakistan." The website does not provide any information on who owns the company or who runs the website. However, according to Pakistani monthly *Newsline*, Raja Sabri Khan, who earned a master's degree from the Massachusetts Institute of Technology, is the chief executive of Integrated Dynamics (July 2009). According to the "about us" section, the company has been "in business since 1997 and design[s] and integrate[s] UAV systems primarily for the Government of Pakistan, the Pakistan Armed Forces and Export." However, Pakistani defense website www.pakdef.info quotes Mr Khan as telling Pakistan's ARY TV that his company has "never been asked to develop a drone which has an armed implication" (15 September, 2008). Pakistani English-language daily *Dawn* reported that "ID develops advanced Unmanned Autonomous [Aerial] Vehicle (UAV) systems capable of reconnaissance missions as well as target decoys for anti-aircraft missiles" and its buyers include "armed forces of the country as well as foreign buyers from the US, Australia, Spain, Italy and France" (24 April 2009). According to US-based corporate intelligence company, Goliath, Integrated Dynamics "is manufacturing and exporting unmanned aerial vehicles (UAV) at US$20,000 each price against starting price of $200,000 in the global market" (24 November, 2006). According to another article on www.pakdef.info, two of the UAVs -- Vector and Nishan -- listed as ID products on the website were actually manufactured by the government-run National Development Complex, "which has brought its Vector and Nishan models" to the IDEAS exhibition held in Karachi (15 September, 2008).

Raja Sabri Khan at his UAV research and development center in Karachi (dawn.com, 24 April 2009)

Source Assessment: The website is fairly extensive and provides detailed product specifications and descriptions including colored brochures with pictures. The website does not provide any information on the company's profile. However, according to the "about us" section, ID is a "100% private company."

Summary: The website begins with the following banner which shows computer animations of flying planes and UAVs. The following links are horizontally arranged on the top of the banner.

Banner

Home: The link leads to the homepage.

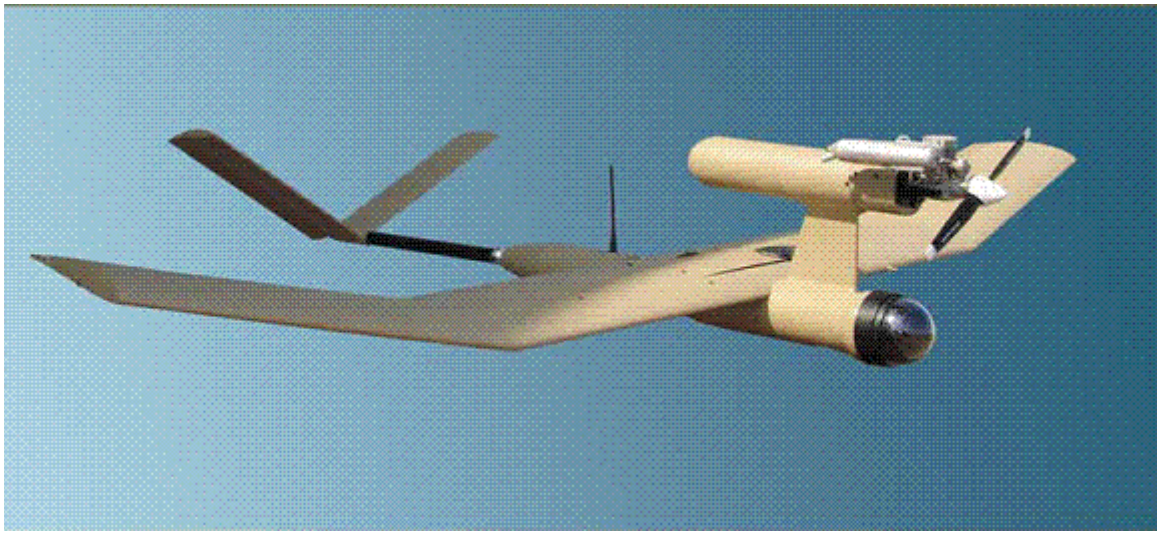
About Us: The link leads to a page that carries the following statement describing ID as "a 100% private company and is located on a 90,000 sq. feet facility." The statement reads: "We are expanding operations globally for export and looking at international collaboration for technology partnerships, academic and training projects, and civilian and scientific R&D technology offset programs. Integrated Dynamics is a full-service UAV systems provider based in Karachi, Pakistan. We have been in business since 1997 and design and integrate UAV systems primarily for the Government of Pakistan, the Pakistan Armed Forces and Export. We are committed to the use of the UAV system as a scientific and defensive tool that

can be used to save lives and monitor potentially hostile environments for human personnel."

Products: It is a dropdown menu that lists the following products.

Surveillance UAVs: The link leads to a page that details the product as follows: "Integrated Dynamics offers seven military and two civilian surveillance systems that can be operated in both UAV (Unmanned Autonomous Vehicle) and RPV (Remotely Piloted Vehicle) modes with the incorporation of dedicated electronics and appropriate ground support systems. The page lists the following 10 systems.

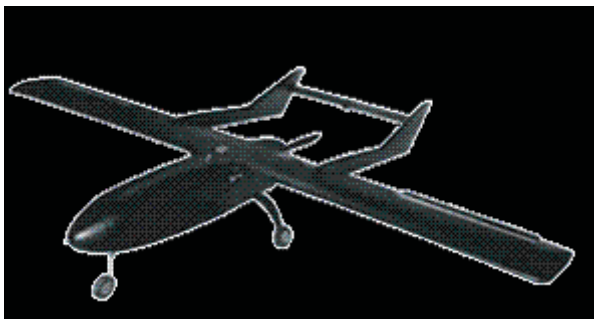
Desert Hawk: The link leads to a page that describes Desert Hawk as a system that "provides live aerial video for news media law enforcing agencies and researchers at a fraction of the cost of blimps helicopters or other manned helicopters." A detailed brochure is available.



Desert Hawk

Border Eagle M-II: It leads to a page that carries the following product description.

"The Border Eagle is a low cost, low altitude surveillance system ideal for multi-mission capabilities. Manufactured currently in its MK-II version, it is designed for area surveillance and perimeter control. It has autonomous navigation capabilities with complete mission recording on a Laptop PC moving map display. With an endurance in excess of 3 hours, and [with] its GSP-100 micro-PTZ gyro-stabilized electro-optic payload, it can be equipped for advanced detection tasks. Detachable fuselage pods provide easy installation of varied payloads. The system is easily maintainable and a two-man crew is required for operations and deployment. A complete system consists of 4 UAV's; a portable GCS-1200 Ground Control Station; the ATPS-1200 Antenna Tracking & Positioning System; programming and moving map mission display software; Spares and the GSE-1200 Ground Support Equipment subsystem." A detailed brochure of the product is available. According to intelligence company Jane's website, "the Border Eagle system is understood to have been introduced in 2003. Current version (2008) is designated Mk II."

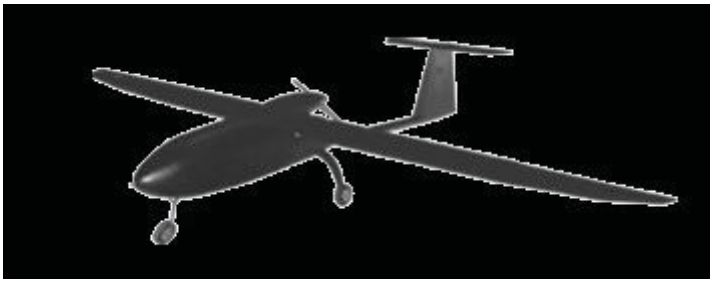


Border Eagle M-II

Vision MK-I: It links to a page that describes the product as follows.

"The VISION MK- I systems can function-over-the-horizon in autonomous and remotely piloted modes and are suited for patrol and extended surveillance missions. In field operations, the VISION's advanced flight control and navigation system can be preprogrammed to autonomously patrol a specified area or photograph multiple targets. This relieves the operator from demanding piloting duties. Complex payloads can be easily accommodated. The VISION MK- I is an ideal system trainer for BVR UAV operations out to 50 km ranges. A complete system consists of 4 UAV's; a portable GCS-1200 Ground Control Station; the ATPS-1200 Antenna Tracking & Positioning System; programming and moving map mission display software; Spares and the GSE-1200 Ground Support Equipment subsystem."

A detailed product brochure is also available on the website.



Vision MK-I

Vision MK-II: It leads to a page with the following product description.

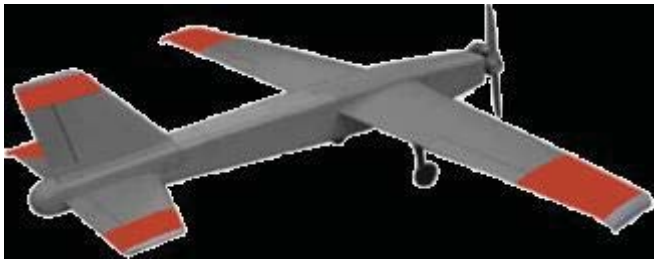
Vision MK-II is a "larger airframe in the vision system that is designed to be a low-cost, stand-alone UAV system element...Capable of operations to a range of 120 km, the VISION MK-II offers a simple single-boom layout and cantilever high-wing configuration for experimental testing of payloads. The reliability and user-friendly characteristics of the platform make it easily adaptable to all our common ground control and tracking systems. A complete system consists of 4 UAV's; a portable GCS-1200 or the more robust GCS-2000 Ground Control Station; the ATPS-1200 Antenna Tracking & Positioning System; programming and moving map mission display software; Spares and the GSE-1200 Ground Support Equipment subsystem."

Vision MK-II

Hawk MK-V: It leads to a page that describes the product as follows.

"The HAWK MK-V UAV System combines field-proven airframes, with aerospace-quality composite construction, and the latest in microelectronic Flight Control and GPS navigation. This UAV has evolved from several years of field testing, of the proven HORNET 80 km range system, into a reliable, tactical surveillance system combined with our unique C4I systems to bring MIL-standard reliability to an affordable level. In the surveillance UAV role, the HAWK's refined aerodynamics allow for extended loiter operation over targets. Pre-programmed 'Smart Flight' routines reduce operator workload and improve aircraft survivability. Compact and mobile - a complete HAWK system can be delivered on-site and is ready for operation in a short time span. Ideally suited for short range tactical applications from 80-120 km, the Hawk UAV system has proven its multi-mission capabilities and reliability in a series of field trials ranging from experimental electronic payload test-beds, surveillance platforms and aerial targets.

"The basic cantilever platform and composite structure provides a stable aerodynamic and payload-carrying configuration for the most demanding tasks. Wing hard-points and large access hatches enable different electronics or surveillance modules to be carried on demand. Light and fast, the HAWK series of aircraft can be powered by engines ranging from 15-25 bhp. A 4.25m (14ft.) wingspan and large payload area easily accommodate infrared, low-light and visible color video systems and still cameras. A low radar signature and refined aerodynamic design allows for extended operation over targets with minimal detection. The option of conventional landing, or a parachute recovery system, greatly reduce operator training and improve aircraft survivability."



Hawk MK-V

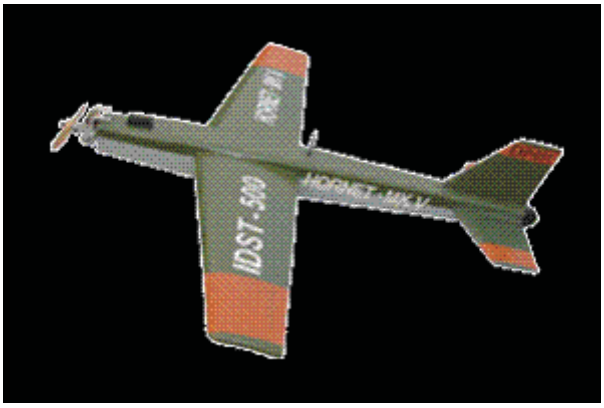
Hornet: It links to a page that describes the product as follows.

"The Hornet UAV System combines field-proven airframes, with aerospace-quality composite construction, and the latest in microelectronic Flight Control and GPS navigation. This UAV has evolved over several years of field testing into a reliable, tactical surveillance system combined with our unique C4I systems to bring MIL-standard reliability to an affordable level. In the surveillance UAV role, the HORNET's refined aerodynamics allow for extended loiter operation over targets. Pre-programmed 'Smart Flight' routines reduce operator workload and improve aircraft survivability. Compact and mobile - a complete HORNET system can be delivered on-site and is ready for operation in a short time span. Ideally suited for tactical applications to 80 km, the HORNET UAV system has proven its multi-mission capabilities

and reliability in a series of field trials ranging from experimental electronic payload test-beds, surveillance platforms and aerial targets.

"The basic cantilever platform and composite structure provides a stable aerodynamic and payload-carrying configuration for the most demanding tasks. The option of conventional landing, or a parachute recovery system, greatly reduce operator training and improve aircraft survivability. A complete system consists of 4 UAV's; a portable GCS-1200 Ground Control Station; the ATPS-1200 Antenna Tracking & Positioning System; programming and moving map mission display software; Spares and the GSE-1200 Ground Support Equipment subsystem."

The page also provides a link to download a product brochure.



Hornet

Shadow MK-I: The link leads to a page that describes Shadow MK-I UAV as follows.

"The Shadow UAV system caters to the medium-sized UAV/RPV market. The SHADOW system offers modularity, ruggedness and accessibility that is second to none in field operations. With payload capabilities in the 40 kg range, and a nominal price tag, the competitive edge is obvious. The SHADOW airframes use bullet-proof Kevlar molded fuselage pans, Kevlar/Graphite reinforced equipment bays and side stress panels and high-tensile steel aramid-reinforced landing gears. A variety of payloads can be supported with the available onboard power supplies.

"The Shadow UAV systems were specially developed to cover a customer requirement for a family of modular composite airframes that could provide tactical surveillance capabilities in the 160-200 km range. Based on a classical twin-boom pusher layout, the aircraft can be equipped with a variety of stock or modified power plants, including tuned-exhaust and belt-driven modifications. All models support real-time video and data modules and flight avionics for at least 200 km LOS range applications.

"A complete system consists of 4 UAV's; a GCS-2000 Ground Control Station; the ATPS-2000 Antenna Tracking & Positioning System; programming and moving map mission display software; Spares and the GSE-2000 Ground Support Equipment subsystem." The page also has a link to a detailed brochure with pictures.

Shadow MK-I

Vector: It links to a page with the following description.

The system "caters to the medium-sized UAV/RPV market. The VECTOR system offers modularity, ruggedness and accessibility that is second to none in field operations. With payload capabilities in the 40 kg range, and a nominal price tag, the competitive edge is obvious. The VECTOR airframes use bullet-proof Kevlar molded fuselage pans, Kevlar/Graphite reinforced equipment bays and side stress panels and high-tensile steel aramid-reinforced landing gears. A variety of payloads can be supported with the available onboard power supplies. The Vector UAV systems were specially developed to cover a customer requirement for a family of modular composite airframes that could provide tactical surveillance capabilities in the 160-200 km range. Based on a classical twin-boom pusher layout, the aircraft can be equipped with a variety of stock or modified power plants, including tuned-exhaust and belt-driven modifications. All models support real-time video and data modules and flight avionics for at least 200 km LOS range applications. A complete system consists of 4 UAV's; a GCS-2000 Ground Control Station; the ATPS-2000 Antenna Tracking & Positioning System; programming and moving map mission display software; Spares and the GSE-2000 Ground Support Equipment subsystem." A detailed brochure of the product is available on the website.

Explorer: The link leads to a page that carries product specifications for a civilian UAV system. The following are the product specifications.

"The Explorer is a more advanced civilian UAV system, with an operational range of 20 km, and is designed for more advanced civilian or scientific research programs that require a proven platform as an equipment or sensor test bed. Able to operate out to altitudes of over 6000 feet (2000 m) with an economical and compact IC engine power plant, the Explorer challenges the competition with its refined aerodynamics, advanced flight control systems and highly developed data links. Supplied with a our [as received] GSP-100 gyro-stabilized PTZ camera system and telemetry downlink, the EXPLORER can stay in the air for over 4 hours on 5 liters of fuel. The Explorer is launched and recovered by conventional landing and take-off from unprepared grass or dirt strips. The airframe can also be modified for vehicle rooftop lanches [as received] and belly landings with a Kevlar-reinforced fuselage belly pan. The simplicity and ease of operation greatly reduce operator training and improve aircraft survivability. A complete system consists of 2 EXPLORER UAV's; the GCS-1200 Ground Control Station with programming and moving map mission display software; a DSS (Digital Spread Spectrum) telecommand link; antennas, cables and operational spares." Brochures are also available

Explorer

Rover: The link leads to a page that describes Rover as an "affordable civilian scientific" and "Electronic News Gathering" system. The following are the product specifications.

"The Rover is a pioneering effort to create an affordable civilian scientific and ENG (Electronic News Gathering) UAV system, with an operational range in excess of 5 km, and is designed for the researcher, academic professional or news crew needing information quickly and reliably. Able to operate out to altitudes of over 2000 feet (600 m) with a noiseless electric propulsion module the ROVER is a robust UAV system. Its compact autopiloting system takes the hassle out of

programming and calibration. Supplied with a PTZ camera system and telemetry downlink, the ROVER can stay in the air for over 1 hour. Weighing less than 5 kg, the ROVER is hand-launched and recovered by a deep stall landing making it available and responsive on short notice. The simplicity and ease of operation greatly reduce operator training and improve aircraft survivability.

"A complete system consists of 4 ROVER UAV's; A laptop PC Ground Control Station with programming and moving map mission display software; a DSS (Digital Spread Spectrum) telecommand link; antennas, cables and operational spares." A product brochure can also be downloaded from the website.

Rover

Telecommand: The link leads to a page that provides specifications for Telecommand and Control systems available in various configurations. It lists the following products.

Portable Telecommand and Control System: "The PTCS is available in various standard and custom configurations for control of Unmanned Aerial Vehicles, Target Drones, Expendable UAV's and Missile Simulations. These systems can operate in stand-alone mode or be easily interfaced to portable laptop computers for graphical display of vehicle flight data and on-board sensors."
IRGX (Integrated Radio Guidance Transmitter): "The IRGX is designed for short range control of radio guided drones and medium sized unmanned aerial vehicles. It can be used for External Piloting operations. It features ruggedized construction and a high power UHF frequency synthesised radio transmitter capable of controlling unmanned aircraft at distances of several miles. The IRGX can be utilized to simplify launch and recovery operations of large unmanned vehicles. It is also well-suited for flight operation of target drones and short range radio guided aircraft. The IRGX and

PTCS can be used in conjunction with all INTEGRATED DYNAMICS autopilots and can be configured for override by another IRGX, during launch or recovery operations, for automatic flight mode control. Multi-channel capability can be extended up to 36 independent channels for control of various mission payloads." Brochures are also available.

PTCS and IRGX

Antenna Tracking Systems: The link leads to a page the lists an antenna tracking system available with the following two models.

ATPS-1200: "The ATPS-1200 Antenna Tracking & Positioning System comprises of the ATP-1200 AZ/EL antenna pedestal, IDT-1200 heavy duty tripod assembly and the ATS-1200 pedestal controller. The rugged system was developed to be transported in a HMMWV shelter. The system can be provided with a receiver for data downlinks. Since the system tracks on a GPS-signal, it is frequency independent and multi-band operation is available in several user-specific frequencies.

"Synchro resolvers provide position feedback to the controller. The pedestal is rated for a 100% duty cycle. Slip-ring interfaces - for 360-degree continuous azimuth rotation are available as an option on both models. The system controller can be either a 19" rack mounted ATS-1200 controller or a weath erproof enclosure assembly mounted directly on the pedestal. Each controller provides front panel control and monitoring of the system. The controller can be used to manually point the antenna with a joystick, or automatically follow a pointing vector commanded by the remote serial link (GPS tracking) in the 'Auto Track' mode. The system is provided with a ground display software package and laptop computer which provides aircraft track over GIS/GPS data interfaces. Power for the ATPS-1200 system is provided by the controller. A receive RF cable and control/power cable are the only connections between the pedestal and the controller."

ATPS-1200

ATPS-2000: The website provides the following product specifications and a brochure.

"The ATPS-2000 is a complete vehicle tracking and antenna positioning system that utilizes our unique GPS-based tracking technology. The ATPS-2000 is a field-proven system that provides 359-stop or optional continuous 360 degree coverage in azimuth and -5 to +95 degrees in elevation. The ATPS-2000 is offered in a tripod mount version or with heavy duty pedestal mounts. The system comprises the AZ/EL antenna pedestal, IDT-2000 heavy duty tripod assembly, and the ATS-2000 pedestal controller. The system can be pedestal-mounted for multi-stacked antenna arrays/dishes or tripod-mounted for portable use with smaller antennas. This rugged system is easily transportable and has minimal electrical requirements. Easily deployable, a complete tracking and telemetry system can be ready for operation within minutes. Simplicity and ease of operation reduce crew requirements and operator training. Frequency bands from 27 MHz to 2.2 GHz can be accommodated. The ATPS-2000 can be installed on an expandable mast for extended range and over-the-horizon operations."

APTC-2000

Target and Decoy UAV: The page describes the system as follows: "The integrated dynamics series of high - speed aerial targets and decoys represent the next generation of air defense training and simulation. With power plants ranging from performance-matched, tuned- exhaust, reciprocating engines to mini-gas turbines - the HS-UAV targets and decoys are a match for any modern air defense system during proving trials or simulation exercises. Proven over many hours of field use, the airframes demonstrate a high degree of modularity, service ease and common features that allow interchangeability of parts and easy interface of payloads and operational electronics. Electronic payloads and subsystems including video, GPS navigation, MDI systems, height lock, sea-skimming and pre-programmed loiter and multi-pattern presentation profiles are standard options."

The product is available in the following three versions.

Tornado: It links to a page with the following product specifications and a picture. The page also provides a link to

download a product brochure. "The Tornado is a lightweight, high-speed, mini-turbojet decoy system with autonomous navigation, pre-strike decoy and fire & forget capabilities. A Tornado system consists of 8 decoy aircraft, a pneumatic catapult launcher system and a portable ground station for pre-programming mission profiles. The Tornado is designed for decoy missions where simulation of actual fighter aircraft is required and the ground control stations provides [as received] simultaneous multiple-vehicle flight capability with a range in excess of 200 km."

Tornado decoy, as pictured on website

Nishan MK-II: The link leads to a page that describes Nishan MK-II as a "part of the Integrated Dynamics HS-UAV series of high - speed aerial targets/decoys representing the next generation of air defense training and simulation systems." The page also provides the following product description and picture with a link to download a product brochure. "The Nishan MK-II is piston-engine powered with a 240 cc powerplant. Proven over many hours of field use, the airframes demonstrate a high degree of modularity, and common features that allow interchangeability of parts and easy interface of payloads and operational electronics. Electronic payloads and subsystems include video, GPS navigation, MDI systems, height lock, and sea-skimming modules. A complete system consists of 10 UAV's; a portable GCS-1200 Ground Control Station; the ATPS-1200 Antenna Tracking & Positioning System; programming and moving map mission display software; Spares and the GSE-1200 Ground Support Equipment subsystem."

Nishan MK-II

Nisahn TJ-1000: The link leads to a page with the following description. It also has a link to download a product brochure. "The TJ1000 has a mini-turbojet engine and its thrust-to-weight ratio and performance make it a unique system. The airframes are modular and common features allow interchangeability of parts and easy interface of payloads and operational electronics. Electronic payloads and subsystems include video, GPS navigation, MDI systems, height lock, and sea-skimming modules. A complete system consists of 6 UAV's; a portable GCS-1200 Ground Control Station; the ATPS-1200 Antenna Tracking & Positioning System; programming and moving map mission display software; Spares and the GSE-1200 Ground Support Equipment subsystem."

Nisahn TJ-1000

Video and Data Downlinks: The link leads to a page that provides product specifications and lists a video and data transmitter and video and data receiver. The website describes the products as "state-of-the-art microwave analog FM and COFDM data and video transmission systems using OEM modules for custom applications. Our video and data links feature full VSB filtering and spurious frequency rejection capability. Complete support on engineering and commissioning of systems is available. A complete line of antennas, receivers, software, in-line linear amplifiers and pre-amplifiers is also offered making the systems ideal for UAV's, UGV's, wireless data applications, surveillance, event coverage, experimental applications, monitoring, and security. All systems are compatible with standard B&W, Color, PAL and industry standard NTSC."

Brochures for FM video data transmitter Model: LTX-1200-70 and Model: LTX-1200-80 and FM video data receiver Model: WP-1202 and Model: WP-1205 are available.

Gyro Stabilized Payloads: The link leads to a page that details the product as follows and provides links to download brochures of the three models of the product. "Integrated Dynamics GSP-series is a range of lightweight and economical gyro-stabilized platforms that are unique in their design, operation and simplicity. Our packages deliver unmatched performance-to-cost ratios and state-of-the-art microelectronics technology making them suitable for compact and low payload capacity platforms. They provide the ideal starting point for more demanding applications without cutting into your budget. The GSP series of platforms are a cost-effective means of performing discrete surveillance tasks with daylight or low-light sensor packages in color, monochrome or infra-red formats. The compact, remotely-controlled units, provide both motion isolation and angular stabilization of the sensor package. The outer stage gimbaled dome enclosure absorbs all environmentally induced vibrations and positions the optical port hole window to the line of sight of the camera system. The inner gimbal is isolated from all vehicle vibrations and provides active gyro-stabilization of the pitch and yaw angular axes. The operator views the video image, and all critical system parameters, on a color video monitor. The video image may also be recorded or transmitted, in real-time, to ground stations through a microwave link."

The page lists the following three models of the product.

GPS-100: "The GSP-100 is a small; daylight camera package ideally suited for operation in short range UAV systems. The GSP-100 features the option of both infrared and visible low light cameras installed in a single small, low-drag housing wit a PTZ interface. With a spherical diameter of only 5" (13 cm) the GSP-100 has extremely low impact on aircraft flight characteristics and overall drag regardless of its pointing direction. Gimbal weight is less than 2 pounds (1 kg.) and allows aircraft to carry maximum fuel for longer endurance missions. The GSP-100 can be interfaced to various positioning devices providing a lightweight and inexpensive targeting system. Very low electrical requirements place minimal electrical demand on aircraft systems and provide maximum mission duration."

GSP-100

GSP-900: "The GSP-900 is a dual camera package ideally suited for operation in larger UAV systems such as the HORNET, HAWK, VISION, VECTOR and SHADOW series. The GSP-900 is supplied with a daylight color camera and features the option of both infrared and visible low light cameras installed in a single small, low-drag housing. With a spherical diameter of only 9" (23 cm) the GSP-900 has extremely low impact on aircraft flight characteristics and overall drag regardless of its pointing direction. Gimbal weight is less than 6 pounds (3 kg) and allows aircraft to carry maximum fuel and payload. Modular components are compact, rugged and easily serviced. Various infrared, low-light, and visible video imaging devices are easily accommodated. High-resolution still photographic cameras can also be accurately positioned. The GSP-900 can be interfaced to various positioning and fire control devices providing a lightweight and inexpensive targeting and fire control system."

GSP-900

GSP-1200: "The GSP-1200 is a dual camera package ideally suited for operation in manned aircraft and larger UAV systems. The GSP-1200 is supplied with a daylight color camera and features the option of both infrared and visible low light cameras installed in a single small, low-drag housing. With a spherical diameter of only 12" (30 cm) the GSP-1200 has extremely low impact on aircraft flight characteristics and overall drag regardless of its pointing direction. Gimbal weight is less than 29 pounds (13kg.) and allows aircraft to carry maximum fuel and payload. Modular components are compact, rugged and easily serviced. A multi-spectral payload with a daylight TV camera with 20X Optical zoom in the visible range and an IR 2X EO zoom gives a larger image and 40% increase in thermal sensitivity. Various infrared, low-light, and visible video imaging devices are easily accommodated. High-resolution still photographic cameras can also be accurately positioned. The GSP-1200 can be interfaced to various positioning and fire control devices providing a lightweight and inexpensive targeting and fire control system. Very low electrical requirements place minimal electrical demand on aircraft systems and provide maximum mission duration."

GSP-1200

Flight Control Systems: The link leads to a page that details product descriptions of four models of flight control systems as follows and links to download product brochures for all the models.

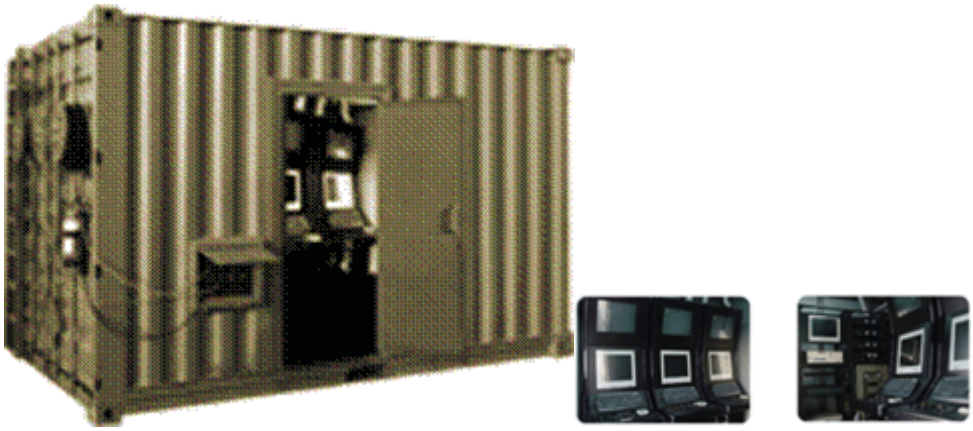
AP- 2000: "The AP- 2000 is specially designed for flight control of low-cost or expendable UAV's and aerial targets. The AP-2000 system offers superior performance without the complexity and cost normally associated with full-blown UAV autopilot systems. The autopilot provides conventional wing leveling, and height- lock features in a compact package and is easy to calibrate, with its AUTOTRIM feature, for a variety of airframes."
AP-5000: "The AP-5000 provides the conventional wing leveling and height lock features of the AP-2000 with the addition of a GPS-based return-home and heading module in a compact package which is easy to calibrate for a variety of airframes not requiring the learning-curve of more complex auto-piloting systems."
IFCS-6000: "The IFCS-6000 provides precise and stable flight control that greatly simplifies UAV flight operation. By utilizing "smart" electronics, solid-state gyros and inertial sensors, our IFCS-6000 system offers superior performance without the complexity and cost normally associated with competing UAV autopilot systems. Total solid-state design significantly reduces electrical power requirements while increasing reliability and performance. A variety of airframe types can be accommodated without complicated adjustments and calibration usually required with conventional autopilot systems. The IFCS-6000 accepts command inputs from a laptop PC allowing UAV's to operate autonomously or under remote operator control. Latitude, longitude, speed, heading, altitude, time, date, and waypoint status, as well as video imagery, can all be continuously transmitted via data downlinks to ground control stations. Ground display requirements are minimal and require no more than a simple PC or laptop computer. Multiple control I/O is supported by allowing sensor data to be displayed using Integrated Dynamics unique Sensor view software."
IFCS-7000: "The IFCS-7000 is Integrated Dynamics next-generation UAV flight control system designed for military users. It incorporates all the features of the IFCS-6000 and provides the added versatility of a 6DOF Inertial Measurement Unit (IMU) and GPS/INS interface. Sensor outputs can be viewed using our SENSORVIEW software. The IFCS-7000 also allows interfacing of payloads and on-board systems into a compact 'smart' electronics package and makes the UAV more intelligent by performing demanding tasks without external operator intervention. The IFCS-7000 also provides interface data for controlling our ATPS-1200 and ATPS-2000 Antenna Tracking & Positioning Systems. The IFCS-7000 is a low cost integrated flight control system incorporating navigation, stability, and control. These capabilities include airspeed hold, altitude hold, turn coordination, GPS navigation, autonomous takeoff and landing (with the LARS-1700 Auto-Land system). Extensive data logging and manual overrides are also supported, as is a highly functional command buffer. All feedback loop gains and flight parameters are user programmable. Expansion options, in the form of several customized modules, are available. A PC based mission simulator is also available for the IFCS-7000."

Ground Control Stations: The link leads to a page that describes ID's ground control system as "rugged and easily transportable. Multiple vehicle control, RF signal and power isolation systems, distribution busses and complete I/O control for peripheral devices is featured." The page lists the following two models of the product with links to download product brochures.

GCS-1200: "The GCS-1200 is a portable, stand-alone, ground control station that offers UAV control, data linking and interfaces for the ATPS-1200 Antenna Tracking System. The GCS-1200 can track UAV's out to a 100 km range and incorporates a PC, data display monitor, antenna driver interface, the GCR-1300 ground data receiver, and AC/DC power supplies. Simplified operation and mounting functionality in LandRover type vehicles make it a versatile and field-proven data centric system."

GCS-1200

GCS-2000: "The GCS-2000 is a field-proven system that provides continuous transmission and reliable reception of UAV data. It offers a complete C-4I solution when combined with the ATPS-2000 Tracking system and our microwave telecommand and control and video & data links. This rugged system is easily transportable and has minimal electrical requirements. Designed for UAV system C4I out to 250 km range without the need for repeater systems, the GCS-2000 can be ready for operation within an hour of arrival at the site. User-friendly software and setups reduce crew requirements and operator training. The GCS-2000 is designed around a ruggedised shelter with three operator stations for a Mission Commander, Pilot, and Observer or payload operator. Each station is equipped with hot-swappable PC's for redundancy."



GCS-2000

Civilian UAVs: The link leads to a page that lists two versions of civilian UAVs called Rover and Explorer as have been described above.

Gallery: The link leads to a page that carries pictures of the products as described in the Surveillance UAVs section.

News: The link leads to a page where reports of the company business and development activities are posted. The page is updated once every several months. According to the latest report posted in February 2009, the ID has "exported to Spain and Australia. We are now proud to add the Australian Research Centre for Aerospace Automation (ARCAA) as a customer to the SHADOW's growing list of customers around the world."

Investors: The link leads to a page with a statement inviting partners in "business-to-business" and "investor interests programs" with the contact email address: invest@idaerospace.com.

Contact us: The page provides the following email addresses with some pictures without descriptions or captions: info@idaerospace.com, sales@idaerospace.com.

Services: The page lists the following areas of services that the ID provides.

UAV Technology Demonstrator Programs

Custom Airframes

Custom Software

Flight Control Systems

Data Links

Simulation Systems

Complete System Solutions

Ground Support Equipment

Tracking Systems

Field Service Equipment

Technology Transfer Programs on Selected Sub-Systems

The page also lists an email addresses for customers who have "customized requirements for system areas not directly listed" in the "services section:" custom@idaerospace.com.

On the left side of the homepage are listed the same links as described above with the following additional links at the bottom.

Links: The link leads to page that carries links to international UAV making companies.

Careers: The page lists vacancy announcements for positions of an electronics design engineer, a software engineer, a mechanical engineer.

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