



Avionics Explorer

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Letter from VP and General Manager of Teledyne Controls



Masood Hassan

I would like to take a moment to welcome all of you to the first edition of the Teledyne Controls' Avionics Explorer Newsletter. We will be sending issues throughout the year to update you on our news breaking activities, product upgrades, technical tips and to notify you of the latest industry developments. At Teledyne Controls we are here for you, our customers, who have made us what we are today.

The year 2000 proved to be one of the most successful

years in Teledyne Controls' history as new products opened up new markets, and upgrades to older products brought in new opportunities. The Data Acquisition product line was bolstered with the development of the latest technology Enhanced Mini-Flight Data Acquisition Units (EMFDAU) which meets the new FAA 88-parameter requirements as well as performs Aircraft Condition Monitoring (ACMS) for regional and business aircraft. Meanwhile, the advanced Digital Flight Data Acquisition Unit (DFDAU) -8XX series continues to saturate the market for mandatory recording and ACMS capability for Boe-

ing aircraft. Also, our engineers continued to work with their EADS counterparts on the development of the Flight Data Interface Management Unit (FDIMU) for both the Airbus single-aisle (A318/319/320/321) as well as the long-range (A340-500/600) aircraft as we look to complete the certification process in 2001.

In our Data Communications product line, the Communication Management Unit (ARINC 758 CMU) received certification on several aircraft platforms, and looks to offer the most robust and expandable system for the air transport data link community. Teledyne's *(continues page 2)*

The Virtual Office in the Sky

Teledyne Controls introduces SkyOffice™, to provide the same office capabilities onboard a business aircraft as those that are available in the terrestrial office through innovation in mobile telecommunications and Internet service management.

By providing a complete package of hardware, software, and services, SkyOf-

ice™ blends the existing MagnaStar® and Ground-Link™ capabilities with those of the Internet. This enables Teledyne Controls to provide the air traveler the ability to operate personal laptops and use existing e-mail accounts via an onboard server that hosts e-mail, web pages and a variety of news, financial, and entertainment information.

These services are achievable through the introduction of an onboard host server. The server is essentially a web portal that holds extensive web content and provide our ISP partners a platform for targeted services and the ability to regularly update these services throughout the course of a flight.

By initially developing services and equipment with the *(continues page 2)*

Updates....

Don't forget about getting your aircraft updated to meet the **Rule 97** requirements—Upgrades are available.

Teledyne Controls' **RVR** (Runway Visual Range) program would like to welcome the new FAA Program Manager Pamela Narvette to the team.

The Teledyne RVR program is an ongoing commitment with the FAA to have over 300 airports in the US operating with the new generation RVR system. 180 have been commissioned to date. The latest generation RVR system, based on our forward scatter technology, is the most reliable/accurate system of its kind in the world.

FDIMU- Flight tests will begin with Airbus this month. Both units (single aisle and long range) have passed DO160D environmental qualification testing.

Teledyne Controls has partnered with SimAuthor's **FlightViz™** for **FLIDRAS III**. *FlightViz will enhance the FLIDRAS III capability by adding a three-dimensional data visualization component.*

The Communication Management Unit (**CMU**) has new part Supplemental Type Certifications (STC) to report, as follows: The **724B CMU** configuration Part # 2231900-1 STC for the MD-11 (completed), 747-400 (completed) and MD-90 (completed), and the **758 CMU** configuration Part #2231900-2 Type Certifications for the 737-NG (completed), MD-11 (June-2001), B767-200/300 and 737-300 (July-2001).

SkyOffice™ Continued

existing air telephone and GroundLink™ products, Teledyne Controls positions the SkyOffice™ system to interface with future airborne broadband communication systems.

SkyOffice™ provides the following software and services:

- Internet Service Provision
- Focused Web Portal Software
- Real time in-flight Internet
- Real time in-flight E-mail
- In-flight Destination Services
- E-mail Replication Services
- Corporate Home Pages
- Corporate Intranet Content

The backbone of the service is the cabin

"SkyOffice is the complete package that meets the needs of the corporate office away from home."

TCP/IP network interface to the MagnaStar® phone system and the ISP management of content in the airborne server. In this initial phase, Teledyne



Controls will utilize the GroundLink™ for high data transfer to the onboard host server and use the MagnaStar® air to ground link to provide real time data transfer while airborne. When the aircraft is on the ground, the server will replicate e-mail accounts over the high speed GroundLink™ for storage on the aircraft server, allowing the pas-

senger to access e-mail in flight, compose e-mail responses and store e-mail for message transfer when back in contact with network over GroundLink™. Priority and short messages can be sent in real time over the Air to Ground network. Additionally, the onboard server can upload pre-designated web pages for cache browsing while airborne. This allows the traveler to set a predetermined browsing list of specific financial, news, weather and entertainment choices prior to takeoff for retrieval and review later in flight.

List of components that SkyOffice™ provides:

- MagnaStar® Air Telephone
- GroundLink™
- Airborne Server
- Cabin LAN
- Ethernet Access Point
- Wireless Handset

SkyOffice™ is the complete package that meets the needs of the airborne corporate office.

For more information on SkyOffice™ please contact Ray Larkin.

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Above :Teledyne Controls/ Verizon Airfone awarded Executive Jet the above award in conjunction with the 2000th MagnaStar® installation.

Masood Hassan Continued

Mini-CMU and the TeleLink®, continue to lead the market in offering a powerful data link product in a small 1 MCU package for the business and regional aircraft. Finally, Teledyne's best seller, the MagnaStar® digital airborne phone system (a tri-team partnership with Verizon Airfone (formerly GTE), Raytheon, and Teledyne) was once again the system of choice for business & commuter aircraft in 2000. In 2001, we look to further expand the product offering as an integral component of our SkyOffice™ develop-

ment which will bring increased functionality and connectivity to the traveling executive.

In 2000 we also emphasized our internal Research & Development, as we continued our efforts to bring to market a flexible and powerful wireless GroundLink™ solution for air transport, as well as business and commuter aircraft. Resources were also expended to meet the growing FOQA needs, offering enhancements to our existing FLIDRAS and Optical Quick Access Recorder (OQAR)

products.

I would appreciate any feedback about our newsletter so we can strive to keep you better informed.

Please feel free to contact our newsletter editor, Chris Demont (310-571-2637, or via email: chris_demont@teledyne.com) for any suggestions on our newsletter.

Thank you, and best of luck to you in 2001!

What about Wireless GroundLink™?

Teledyne Controls introduced the Wireless GroundLink™ Quick Access Recorder (WGL/QAR) to markedly reduce the time and effort needed to place the recorded data at the disposal of maintenance and flight operations personnel. The WGL-QAR employs an automatic, wireless data transfer method to eliminate manual removal and transfer of recorder media from the aircraft to the operators data processing center. The wireless operation also obsoletes the logistics associated with maintaining, tracking and rotating the recorder media between aircraft, data processing center and media storage.

In operation, the WGL-QAR records data from engine start to engine shutdown. During the flight the WGL-QAR behaves as any other quick access recorder, storing the data on a removable ATA PC-Card. The recording format is compatible with Teledyne's other recording products. After landing and when the WGL-QAR determines that the

"The WGL-QAR employs automatic, wireless data transfer method to eliminate manual removal and transfer of recorder media from the aircraft to the operators data processing center."

aircraft is parked, the WGL-QAR creates a file containing all the data recorded since the previous successful transmission. This file is then compressed and encrypted. Teledyne employs a symmetrical encryption algorithm derived from our prior experience developing Interrogate Friend or Foe (IFF) systems for the US government. The use of compression and encryption algorithms coupled with encryption key management provides for unparalleled data security.

The compressed, encrypted file is transferred using a Teledyne proprietary transfer protocol that utilizes the User Data

gram Protocol (UDP) and TCP/IP network protocols, allowing the data to be securely routed via the public internet.

Up to 8 (typically 4) concurrent connections may be used; each establishing a separate PPP connection regardless of whether the wireless service

provider supports packet or circuit switched connections.

The encrypted file is transferred as a series of fixed length blocks, which are sent over any of the available connections. Numerous checks and corrections are included to guarantee received data integrity at the Ground Base Station regardless of packet losses or circuit dropouts. If the transfer is interrupted, the data is saved and the transmission is resumed at the next available connection time.

Compatibility

The WGL-QAR is plug-in compatible with existing recorders, matching the form factor (4 MCU or 1/2 ATR housing, ARINC 600 or ARINC 404 back connector), data input from (bi-polar, bi-phase, or Plessey), data rates (from 64 to 512 wps), configuration discrete, failure output discrete, and tape low discrete.

Advantages

- Automates data transfer from the aircraft to the data center.
- Uses existing cellular/PCS data networks eliminating the need for the installation of dedicated infrastructure at each airport.
- Ensures data security.
- Provides numerous enhancements and expansion capabilities over the existing Quick Access Recorder, that provide additional benefits to the user, including alphanumeric front panel display, and menu-driven user interface.

Services offered by Teledyne

The WGL-QAR technology is also

the Teledyne Data Delivery Service and/or the Teledyne Data Processing Service. This combination can virtually eliminate all capital expenditures associated with the implementation of the infrastructure to implement Flight Operations Quality Assurance (FOQA) and/or Maintenance Operations Quality Assurance (MOQA) programs.

Teledyne Controls' Data Delivery Service incorporating Wireless GroundLink™ in an end to end service, eliminates the need for capital expenditures, and serves to "future-proof" the customer solution. With the Teledyne Data Delivery Service, the evolution of cellular/PCS communications will be tracked and upgrades will be incorporated by Teledyne to maximize the benefit to the operator and to maintain network compatibility.

Data Delivery Service offerings include:

- All WGL-QAR hardware and software (including spares and maintenance), equipped with suitable cellular/PCS modules for the areas of the world in which the aircraft is intended to operate.
- Wireless data service with the applicable service providers
- Routing of the wireless data to the Internet
- All required GroundLink Base Station hardware and software
- Internet Connection

In closing, Wireless GroundLink™ is the cost effective and efficient answer to transfer recorded data from aircraft to the data processing center.



This month Teledyne Controls unveils its new label.



TELEDYNE CONTROLS
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Upcoming Teledyne Tradeshows and Conferences

Helicopter Association International –Heli Expo	Feb 11-13	Anaheim, CA
Teledyne Controls Users Conference	March 14-16	West Los Angeles, CA
Avionics Maintenance Conference (AMC)	April 2-5	San Francisco, CA
American Electronics Association (AEA)	April 26-28	Dallas, Texas
Regional Aircraft Association (RAA)	April 30 - May 2	Tampa, Florida
Canadian Business Aircraft Association (CBAA)	May 15-17	Vancouver, Canada
Paris Air Show	June 17-24	Le Bourget, France

For Information on Teledyne Controls Events please contact Elaine Guay

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