



An Axiometrix Solutions Brand



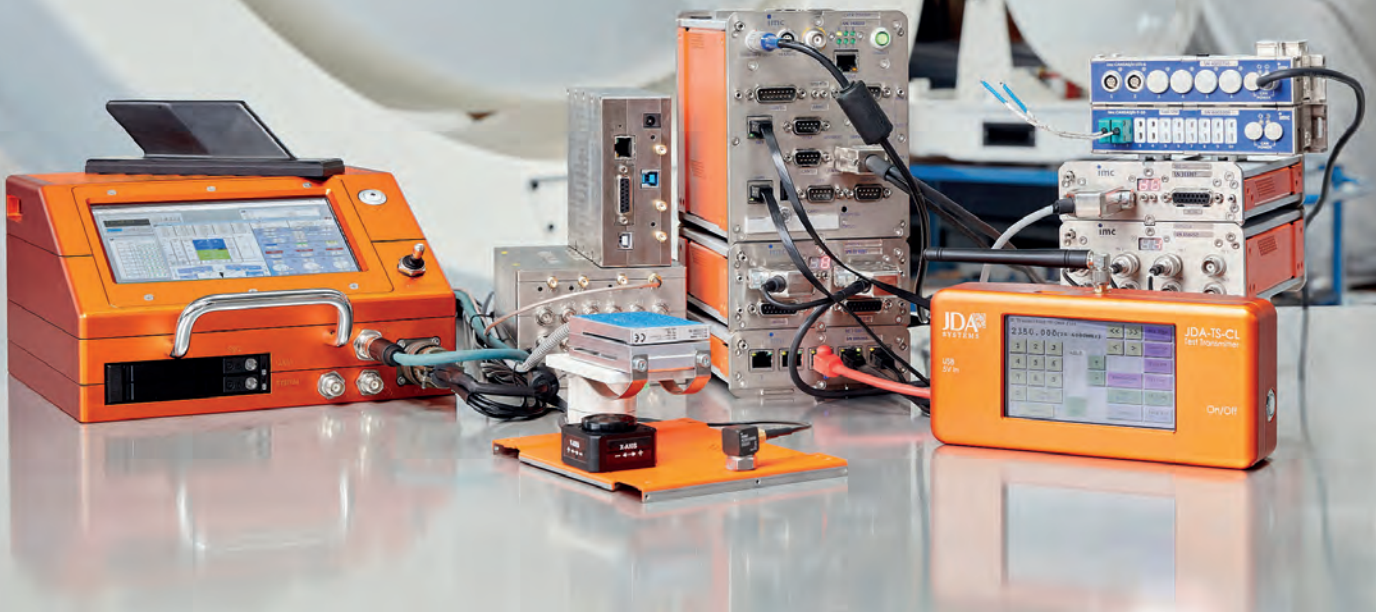
The Complete Flight Test Solution

time-saving • reliable • precise

imc – productive testing

www.imc-tm.com/flighttest

- ✓ Highly accurate and reliable data acquisition
- ✓ Supporting virtually all sensors and interfaces
- ✓ Real time analysis, monitoring & data reduction
- ✓ In flight reconfigurable telemetry data stream
- ✓ All based around the IRIG 106 standards



imc and JDA Flight Test Instrumentation

Time Saving & Efficient Flight Test Solutions

From airborne data acquisition to telemetry transmission and post processing on the ground

The Complete Solution

The **imc Flight Test Solution** offers a full flight test instrumentation and telemetry solution. It is jointly powered by JDA Systems' gateway, recorder and telemetry equipment and imc Test & Measurement's data acquisition (DAQ) systems.

The **imc Flight Test Solution** product family offers a wide array of highly flexible configurations to meet today's harsh flight testing environments. From data acquisition in the air to real-time telemetry transmission and post processing on the ground, **imc Flight Test Solution** is based around the IRIG106 flight test standards to deliver accurate and repeatable performance test after test.

The complete flight test solution comes with simultaneous IRIG-106 Chapter 7 down and up links for real-time flight test setup from the ground even on the fly. Other interfaces include wireless technologies with direct transmission ranges commencing at 15 km while the technology emerges to support the newer protocols of the Integrated Network Enhanced Telemetry system (iNET) currently being integrated into the test ranges.

Data Acquisition (DAQ) Systems for Every Need

Whether your test needs a fast (e.g. flutter testing) or slow (engine temperatures) sampling rate, imc's extensive product spectrum enables time synchronous data acquisition. The high resolution 24-bit A/D converting provides best-of-class accuracy for all measurement needs over extended temperatures. Besides analog signals, the **imc Flight Test Solution** covers a wide range of digital signals like Ethernet, RTSP Video, RS485, RS422, ARINC-429, ASCB-D and more.

The imc DAQ system product range is able to connect and work with virtual all kind of analog and digital sensors. The customer-proven, high-precision DAQ technology serves as the basis for our flight test data acquisition systems. Combined with the possibility of synchronized recording of digital field-bus data, our customers get a solution which allows data analysis and processing from one single source.

30 Years of Experience

Working for more than 30 years not only as a DAQ hardware and software provider, but also as system integrator gives us the experience to integrate almost any device (including customer third-party devices) into the flight test measurement.

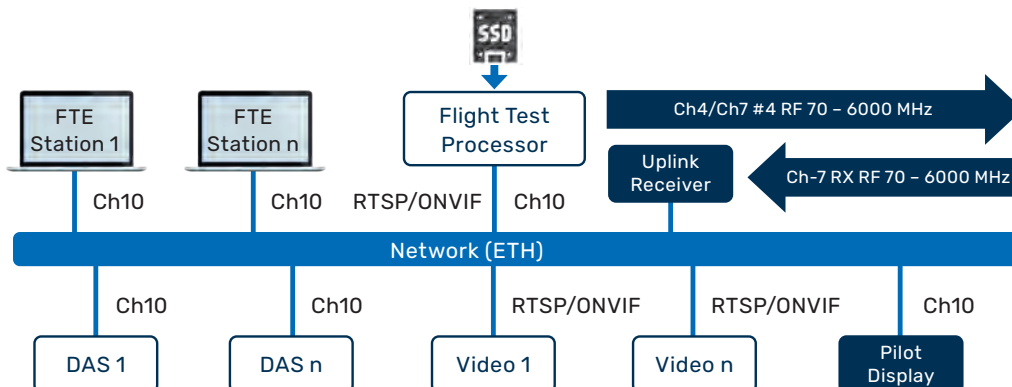
Based on a universal interface module, any proprietary serial bus data can easily be processed by directly decoding and processing as a measurement channel like analog sensor data in the DAQ system. Critical data can also be packed and forwarded in a non-decoded format to the ground station via telemetry.



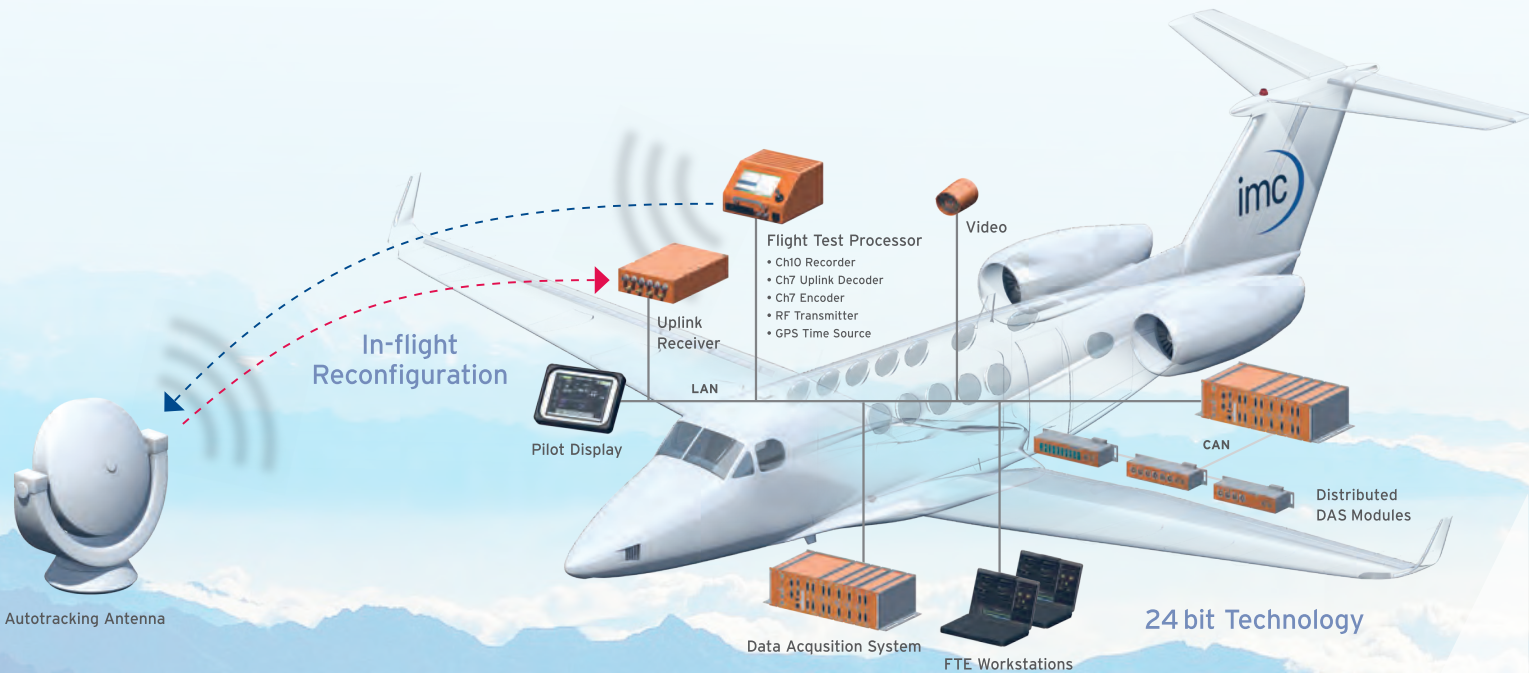
imc DAQ system with integrated AppMod board and sensors as distributed installation

Airborne Overview

The airborne system is based on IRIG 106 Chapter 10 communication. Each DAQ subsystem transfers its data to the Flight Test Processor. This main controller covers the functions of a CH10 recorder, Chapter 7 Telemetry Encoder, GPS synced time source, RF transmitter and CH7 Uplink decoder. It also can decode the CH10 packets on the fly, as required, to drive the pilot display and even onboard engineering clients for data display and analysis.



Airborne Overview



Airborne Data Acquisition Systems (DAS)



imc CRONOSflex

Flexible DAQ system for distributed, fast measurements

- Supports more than 200 channels per system
- 2 MS/s aggregated sampling

imc CRONOScompact

High-end DAQ system for rack-mount use and sophisticated needs

imc HV modules

Highly isolated modules for safe measurements in high voltage applications

- Up to 1.500 V DC

imc CANSASfit

Small and robust DAQ system modules for distributed measurements

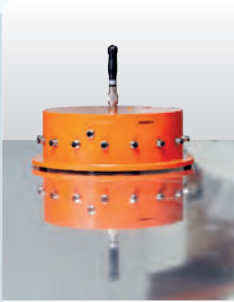
- Operates from -40 to +125°C with condensation
- Robust housing with IP65 rating, MIL-STD-810F
- Sample rate up to 1 kS/s per channel
- Voltage, high voltage, current, PT100/1000, NTC, TC, encoder, PWM, DI, DO, RS232, RS422, RS485

imc Sensors & Services

- Accelerometer, pedal force sensors, fiber optical sensors
- Microphones (ultra-thin, surface, flush-mount, regular)
- Calibration and consultancy

COMPLETE

Special Data Acquisition Systems



imc CTP-NT

Near-field telemetry system in special housing (e.g., for rotor and propeller testing)

- 8, 16, 32 or 64 channels
- Strain gauge, IEPE, LVDT, RVDT, temperature



Custom Designed Housing

Compact 8 to 64 channel DAQ system, based on MTP-NT technology, in ruggedized housing

Airborne Telemetry Products



Network Camera

RTSP/ONVIF compatible video feed



Flight Test Processor

VT-RE-17A
Multifunctional recorder, server, encoder



Pilot Display

VT-PD-07L
Rugged sunlight visible touchscreen



Uplink Receiver

VT-RX-SC 2U
All band direct conversion RF receiver

Ground Station Hardware Products



Tracking Antenna

VT-012 / VT-020
All band autotracking antenna with 1.2m/2m parabolic reflector for down and up links



RF Receiver Recorder

VT-RC-74 DE
All band receiver with recorder function



Tracking Antenna

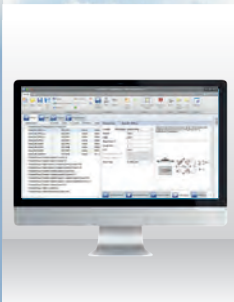
All band portable autotracking antenna with 60cm parabolic reflector for down and up links



Telemetry Decoder

BOB2
2-Channel Mobile Telemetry Station

DAS Setup and Postprocessing Software | Realtime Telemetry Software



imc STUDIO

Software for system setup, real-time pre-processing, data reduction on the DAQ system

imc FAMOS

Software for data analysis, post-processing and professional reporting



JDA VuSoft

World renowned software for telemetry recovery, recording, processing, display, distribution and uplink generation

Flight Test Applications



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Airbus A320 D-ATRA

Challenge

- Testing of a fuel cell driven electric nose wheel.

DAQ system

- Several imc CRONOS PL with more than 3,000 analog and digital channels
- Data analysis with imc FAMOS



© Pilatus Aircraft Ltd.

Swiss Pilatus PC-21 Pilot Training Aircraft

Challenge

- Training aircraft for prospective test pilots. Allows prospective flight test pilots to train in a real flight test environment.

DAQ system

- imc CRONOSflex
- 16 universal channels for additional analog sensors
- PCM-IRIG-106 CH-4 Telemetry
- Data collection from onboard mission computer
- IENA data exchange with on-board mission computer



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Challenge

- Transmission of force (strain), rotor movement, vibration and position measurement on helicopter rotor.

DAQ system

- Telemetry system CTP8-Rotate for the main rotor with inputs for strain gauges, LVDT/RVDT and IEPE vibration measurement
- Very robust and waterproof system with battery supply
- Wireless ON / sleep mode switching to save battery capacity and setting of all sensor parameters



Swiss Pilatus PC-24

Challenge

- Complete flight test instrumentation solution for Pilatus flight test program for development and certification.

DAQ system

- imc CRONOSflex, CRONOScompact, CANSAS, imc Spartan
- > 1,000 analog channels strain, vibration, pressure, RTD, TC
- PCM-IRIG-106 CH-4 telemetry
- Standard A/C BUS integration ARINC429, ASCB-D
- Customer specific Systems integration (Ethernet, RS422, CAN)
- 8 Video Channel HD incl. Cockpit Displays Direct-recording (DVI)
- Pilots Display, 2x Onboard-Workstation
- Power-On Sequencing Facility
- Recording Capacity up to 6 hrs
- Realtime Presentation Software and PCM Decoding Facility on Ground for 15 Seats



© Pilatus Aircraft Ltd.

eVTOL Air Taxi

Challenge

- Rotary near-field telemetry for powertrain rotor development.

DAQ system

- CRONOScompact rack-system with APP-Mod-Board for IENA protocol integration and XCPOE
- 16 channel vibration
- 8 channel strain gauge
- isolated 16 channel U/T
- Near field telemetry CTP-NT for 24 analog channels and 8 temperature channels, bluetooth configuration



About imc Test & Measurement

imc Test & Measurement manufactures innovative solutions for test and measurement in research, development, service and production.

It caters to customers in automotive, aerospace, railway, machinery and energy industries worldwide. imc sensors, data acquisition systems and software as well as its integrated solutions enable its users to validate prototypes, optimize products, monitor processes and to gain insights from measurement data in mobile or in stationary applications.

imc Test & Measurement is part of Axiometrix Solutions, a leading test solutions provider comprised of globally-recognized measurement brands.

About JDA Systems

JDA Systems is a long established partnered telemetry company with a wide range of proven products. imc has teamed with JDA Systems to develop and supply a new and innovative type of flight test system.

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