CAS DATALOGGERS

Achieving New Heights With Flight Data Recorders

Monitoring Aircraft Data With The ReXgen2 IMU

The ReXgen2 IMU is an intelligent data logger from Influx that not only demonstrates its significance in use with road-running automobiles, but also delivers remarkably excellent results when employed in aircraft. The existing multirole mini aircraft lacks a robust data logging system that can record all the events occurring during a flight. The Influx ReXgen2 IMU can effortlessly log the CAN network data and IMU data to study flight dynamics in technically advanced machines, like in such aircraft. In addition, the engine performance can be studied after decoding the recorded data using CAN DBC files.

Practically, the data logger can be used as an in-flight black box data recorder to record the flight data and CANaerospace protocol. ReXgen provides the user with the information regarding:

- What was the route taken?
- Challenges in the route taken
- What were the weather conditions?
- Was the planned flight route followed/or not?

Knowing the flight path is very important as it helps in knowing:

- How much fuel was available?
- What was the duration of the flight?
- How much fuel was consumed with average altitude?

To determine the engine's efficiency, knowledge about fuel consumption is essential. In addition, every aspect of the flight system needs to be monitored proactively. The data is stored on the network for post-flight analysis to study:

- Critical data needed to monitor the flight?
- Any malfunctions?
- Change in the critical parameter?
- Does the flight have a rare issue?
- Is monitoring required for compliance?

The ReXgen 2 IMU enables the user to review past events and diagnose any issues by continuously logging data.

Why ReXgen2 IMU?

The ReXgen2 IMU comes with a 6-axis IMU sensor and an embedded GNSS. The built-in IMU sensor allows the user to track the flight path without any additional module, leaving no need for any additional instrumentation to be used for tracking. It is capable of monitoring every single aspect during the flight:

Ground Run: Aircraft Ground Running is a term generally used to describe the operation of some, or all, of an aircraft's engines while on the ground, to check the operation of either engines or aircraft systems functionally.

Flight Data: Operational Flight Data Monitoring (OFDM) is a quality assurance

process with a vital safety management dimension. OFDM offers an efficient solution to this challenge.

Landing Data: Vital data is being monitored when the flight is preparing for landing. As the flight is preparing for landing, many safety-critical systems are activated, such as landing gear.

Taxiing: Taxi time is the amount of time an aircraft spends in movement on the surface of an airport. For the scope of this application, the focus is on departure taxi-time (or taxi-out time), which is the time between an aircraft leaving a terminal gate and taking off from an airport.

Some of the key parameters that can be logged using ReXgen2 IMU from the CANbus are:

- Altitude
- Airspeed
- Pressure
- Fuel Level
- Fuel Consumption
- Engine Speed
- Manifold Pressure
- Speed
- Temperatures

Types of connectors available:

DB9: ReXgen 2 IMU is supplied with a standard DB9 connector.

Other types: Other connectors can be used with the ReXgen 2 IMU. Influx recommends identifying the pin-out. After this, you can find an open-wire matching adapter

and create your custom cable. Alternatively, you can use the DB9-generic adapter provided by Influx.

Raw wiring Harness- In some cases, you may prefer to log data directly from the CAN wiring harness.

ReXgen2 IMU supports up to two CAN buses that can be logged simultaneously. One can use CAN0 for the vehicular network and CAN1 for analog instrumentation with a wide range of K-series instrumentation or any other make.

The data recorder is equipped with a micro-USB connector. Once testing is complete, and the aircraft is back inside the hanger, the ReXgen2 IMU can be connected to any display device, such as your PC, via USB to view the live data. In addition, the data can be exported in various formats for analysis with Influx's freely distributable ReXdesk Software.

About The Author

This Application Note has been adapted from an article written by Influx Technology. Influx Technology is the manufacturer of the ReXgen2 IMU, part of the ReXgen series of next generation vehicle and flight data loggers.

- -

For more information on the Influx ReXgen2 IMU, or to find the ideal solution for your application-specific needs, contact a CAS DataLogger Application Specialist at **(800) 956-4437** or **www.DataLoggerInc.com**.