

# AFIRS™ EDGE

FUTURE PROOF WITH 5G AND CLOUD INTEGRATION



**Extensible multifunction  
avionics platform**

**Cutting edge application hosting**

**Unlock the data in your aircraft**

**Modular functionality allows you to buy only what you need, add when you need it**

- Communications available include:
  - Internal multi-SIM cellular (5G/4G/3G)
  - Pole-to-pole IP connectivity through modular Iridium Certus SATCOM
  - Integration with onboard broadband
  - ADS-B IN receiver to support situational awareness applications
- Turn-key applications include:
  - Aircraft Interface Device functionality – A834 ADIF
  - Multi-channel wireless quick access recorder
  - Bulk aircraft system data acquisition and recording
  - AFIRS Analytics – enhanced customized ACMS

**Reduce maintenance resource needs through remote configuration, management, and health monitoring**

**Internet of Things (IoT) gateway with multiple I/O including:**

- Standard aircraft data access through A429, A717, RS232, RS422, and discretes
- IT standard interfaces including Ethernet and USB
- Integral WiFi and Bluetooth wireless access point

**Related Products**

- AFIRS Controller
- ACARS over IP
- GADSS solutions
- JetBridge Applications

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# AFIRS™ 228

IRIDIUM GLOBAL VOICE & DATA COMMUNICATIONS SYSTEM



## TSO 159b Iridium SATCOM

### Reliable ATS Voice and FANS 1/A+ ACARS over Iridium

#### Reliable voice and data services using Iridium's global satellite network including SATCOM voice

- Modernize your heavy, antiquated dual HF system and upgrade to Single HF and SATCOM.
  - Complies with Advisory Circular AC 20-150B as one of the two required long range communication systems
  - Complies with AC 20-140C in support of ATS data communications
- AFIRS 228 has extensive and expandable interface capabilities that allow it to connect to numerous aircraft systems
  - Built in QAR with wireless distribution options
  - Aircraft Data Interface Function (A834 ADIF) Options
- A true line replaceable unit with an Aircraft Configuration Module containing the SIM card, system configuration information and user-stored information

- Reliable voice and data services using Iridium's global satellite network including SATCOM voice, global flight tracking (GADSS compliance), and two-way text messaging

#### Future proof your systems by leveraging AFIRS Analytics with edge processing for aircraft health monitoring such as:

- Engine trending & engine/airframe exceedances
- Real-time engine data analytics
- Fuel management
- Real-time flight data management
- Live black box streaming
- Global flight tracking (GADSS compliance)
- Two-way text messaging
- Automated block and flight times

#### Related Products:

- |                    |                          |
|--------------------|--------------------------|
| ○ AFIRS Controller | ○ JetBridge Applications |
| ○ AFIRS Edge       | ○ GADSS Solutions        |

## AFIRS™ 228B

### Product Details

ARINC 717 Rx (HBP or BPRZ)	1
ARINC 429 Rx	16
ARINC 429 Tx	7
Discrete Inputs	16
Discrete Outputs	8
Ethernet	4 + 1 (Maintenance)
RS-232 Serial (or RS-422)	4
2-Wire "Tip and Ring"	
Telephony Ports	2
Aircraft Audio System Interface	1
Number of Antennas Required	1
533 MHz Processor	
1.5 million gate FPGA	
Dual Redundant 16 GB Flash Memory Cards	
Functions as Quick Access Recorder	
EFB in-flight connectivity (Including iPad)	

### Designed to Meet the Following Specifications

ARINC 429 Mark 33 Digital Information Transfer System  
ARINC 739A Multi-Purpose Control and Display Unit  
ARINC 741 Aviation Satellite Communication System  
ARINC 761 Second Generation Aviation Satellite Communication System  
ARINC 717 Flight Data Acquisition and Recording System  
RTCA/DO-160F

## 228S and 228S TSO

### Product Details

ARINC 717 Rx (HBP or BPRZ)	1
ARINC 429 Rx	16
ARINC 429 Tx	7
Discrete Inputs	16
Discrete Outputs	8
Ethernet	4 + 1 (Maintenance)
RS-232 Serial (or RS-422)	4
2-Wire "Tip and Ring"	
Telephony Ports	2
Aircraft Audio System Interface	1
Number of Antennas Required	1
533 MHz Processor	
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Dual Redundant 16 GB Flash Memory Cards	
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EFB in-flight connectivity (Including iPad)	

### Designed to Meet the Following Specifications

ARINC 429 Mark 33 Digital Information Transfer System  
ARINC 618 Air/Ground Character Oriented Protocol Specification  
ARINC 739A Multi-Purpose Control and Display Unit  
ARINC 741 Aviation Satellite Communication System  
ARINC 761 Second Generation Aviation Satellite Communication System  
ARINC 717 Flight Data Acquisition and Recording System  
RTCA/DO-160G  
RTCA/DO-178C  
TSO C-159B  
SITA VAQ  
ARINC AQP

### FLYHT Certifications

Transport Canada Civil Aviation Approved Manufacturer  
Transport Canada Civil Aviation Approved Maintenance and Repair Organization  
FAA, EASA, TCCA STC Approvals

### LRU Specifications

Chassis L — 12.55", W — 2.27", H — 7.66"  
Mounting ARINC 600 2 MCU  
Rear Mating Connector Size 2 ARINC 600 Receptacle  
Weight 7.0 lbs (3.2 kg)  
SIM Card Housed in Aircraft Configuration Module (Avionics Tray)

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# AFIRS CONTROLLER

FLEXIBLE MULTI-PURPOSE CONTROL HEAD



**FLYHT's new in-cockpit connectivity control head enables a variety of low-cost high-impact options**

## As a standalone purchase

- Electronic Flight Bag (EFB) data switch – connect to any broadband data link via ethernet and have secure wired data to your EFBs
- EFB power – future proof power solution resolving the disconnect between rigid STC management and changing tablet connectors

## EFB Power in the Cockpit

- Low cost expandable EFB charging option
- Never worry about having a sufficient charge on your EFB prior to departure
- Compliant EFB power shutoff

## When coupled with AFIRS hardware:

- Call control
  - Incoming call and fault notification
  - Audio switching and call termination for low-cost voice calling integrations
  - Multi-channel call control options
- AFIRS FLYHTLink EFB app enabler – Wireless QAR and 2-way text messaging
- AFIRS ACMS event – crew control to trigger snapshot reporting of aircraft systems

## List of related products

- AFIRS 228 (B,S, and TSO)
- AFIRS Edge

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# CLEARPORT

CLEAR WINDOW INTO YOUR TURN PROCESS



**“On Time” should not be based on luck**

**Move beyond reporting into action before the delay**

**Operate in the moment with Actionable Intelligence – solutions to the right person to make the right decision at the right time**

- Focus on the problems
- Ignore the flights running smoothly

**Process improvement approach versus “reporting and pressure” – improve how your work which allows you to**

- increase network efficiency and aircraft utilization
- focus on the turn and not just the delay

**Improve the most visible period the aircraft is on the ground in the eyes of the customer – Net Promoter Score (NPS)**

- Consolidate systems and information to one application
- Receive real time alerts when each flight is on en route, on final descent and on the gate

- Allows you to track the critical above and below wing milestones in real-time so that you can take corrective action BEFORE you take a delay
- Displays live video of the ramp so you can actively see each turn in action. Plan daily staff needs based on turns and staff qualifications

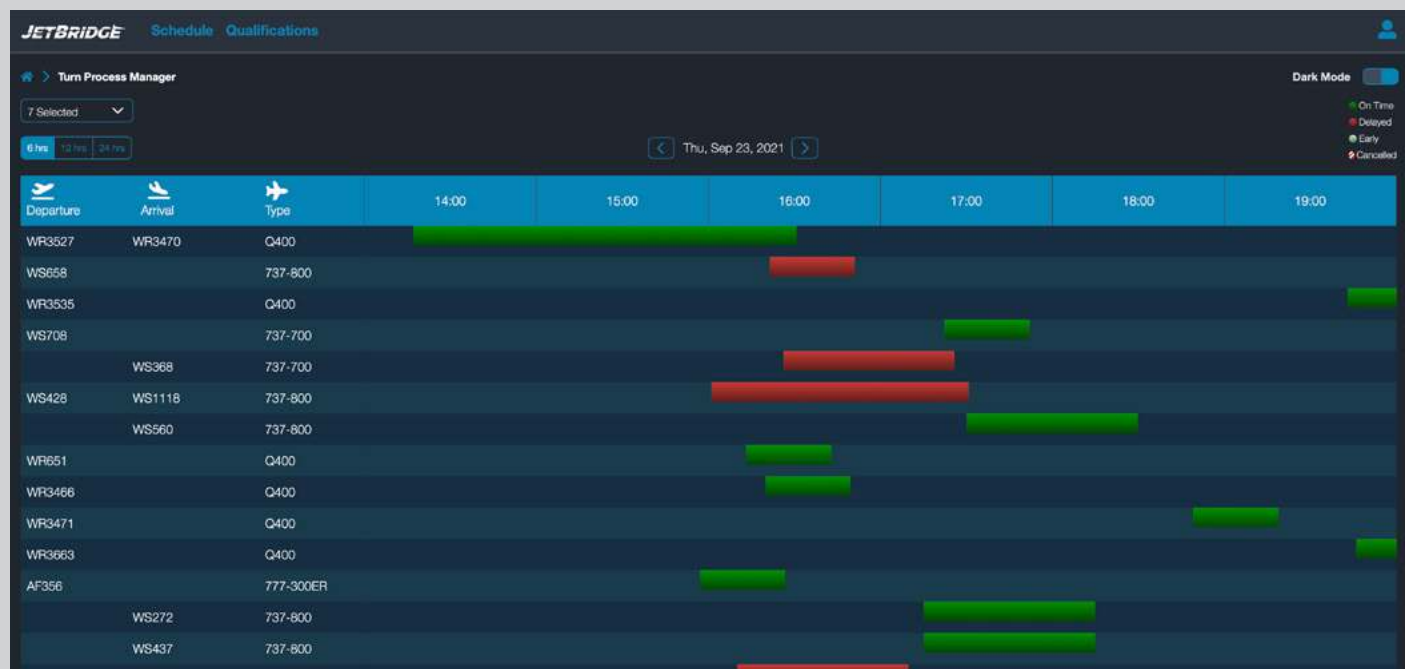
**Choose your level of integration**

- Displays updated turn information without costly integration with Airline systems
- Turnkey system level data inputs without a need for additional integrations
- Additional integrations only increase efficacy of the tool
- Minimal IT involvement

**Related Products**

- FleetWatch
- AFIRS 228 (B, S)
- FuelSense
- AFIRS Edge

## Track your turn milestones in real-time



## Create daily ramp crew schedules at a touch

**JETBRIDGE** Schedule Qualifications

Turn Process Manager > Schedule

Schedule

Tue, June 15, 2021

Download PDF

Arrival Time	Departure Time	Arrival	Departure	Type	Crew Lead	Crew Members
09:00 AM		WJA656		B738	Michael D	Anne G.   Dave M.   Alvin C.   Karen T.
12:30 PM		WJA706		B737	Ron Gader	Anne G.   Dave M.   Alvin C.   Karen T.
	14:10PM		WJA651	B789	John Smith	Anne G.   Dave M.   Alvin C.   Karen T.
	17:40PM		WJA659	B38M	David Turner	Anne G.   Dave M.   Alvin C.   Karen T.
09:00 AM		WJA656		B738	Michael D	Anne G.   Dave M.   Alvin C.   Karen T.
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# AFIRS EDGE MULTI-CHANNEL WQAR

## UNIVERSAL AIRCRAFT DATA HARVESTING SOLUTION



**Skip upgrading to 4G LTE, and leap forward to 5G technology now!**

**Why choose QAR or DAR when you can have both?**

**Collect more data from your aircraft**

**Get your fleet ready for enhanced data harvesting for all your current and future big data initiatives for operational efficiency and predictive maintenance**

### **AFIRS Edge Data Harvesting solution:**

- Records both QAR and DAR data simultaneously
- Capture thousands of additional flight data parameters beyond OEM basic standard
- Future proof aircraft data acquisition: Ethernet, A429, A717, RS422, RS232, discretes
- Flange and tray mount installation options enabling plug-in replacement for old technology wireless QAR systems
- Get all your data after every landing anywhere in the world using FLYHT's secure cellular service

- Retain full ownership and establish your own data governance for data generated by your aircraft
- Uniquely supports 5G technology with 4G / 3G fall back providing long product life beyond 2040
- Reduce maintenance resource needs through remote configuration, management, and health monitoring

### **Related Products**

- Flight Deck Solutions for EFB
- AFIRS Controller
- AFIRS Analytics
- Internet of Things (IoT) Data gateway
- ACARS over IP
- GADSS solutions
- JetBridge Applications

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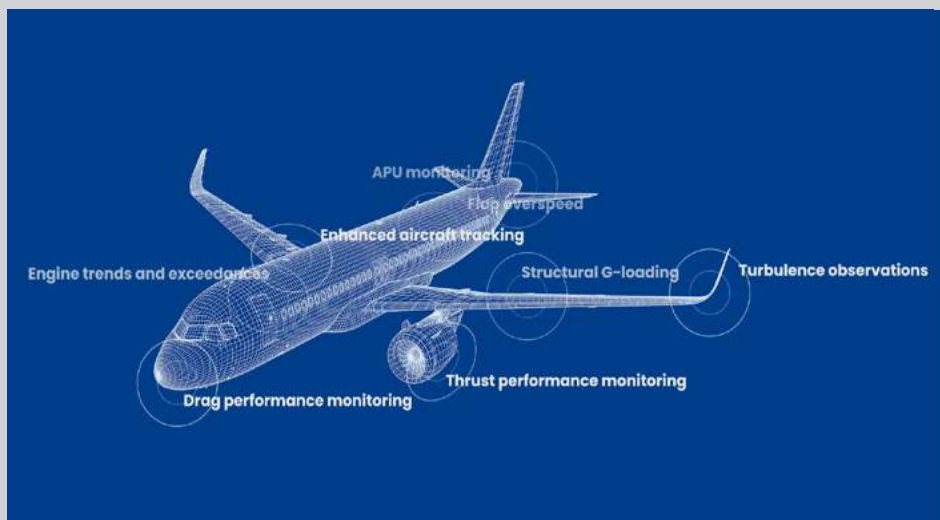
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# FLEETWATCH

FLIGHT FOLLOWING & GADSS ICAO COMPLIANCE



**Customizable  
exception-based  
visual alerting**

## Configurable Fleet wide situational awareness on a global scale

### Global Flight Tracking & Alerting

Track aircraft through the entire flight, including remote areas, for real-time alerting and actionable intelligence

Real-time AFIRS position data is displayed on FleetWatch, FLYHT's aircraft situational display (ASD)

Reporting intervals when integrated with the AFIRS system are fully configurable on the fly (30 seconds – 60 minutes) and appear as real-time plots, showing the exact position of the aircraft.

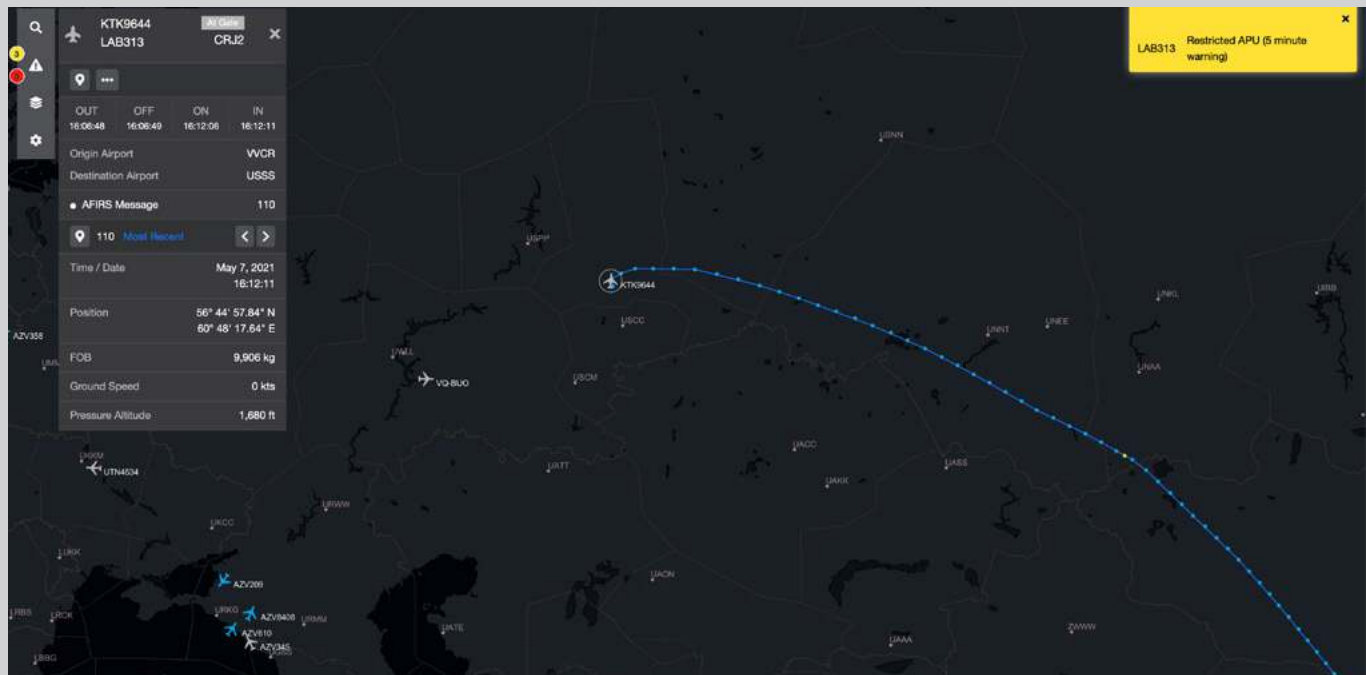
### With AFIRS connecting to a variety of onboard systems

- Aircraft data can be used to monitor the status of aircraft
- Additional information such as fuel on board, departure/arrival airports and arrival time, for example, allow for a richer real-time view of the aircraft.

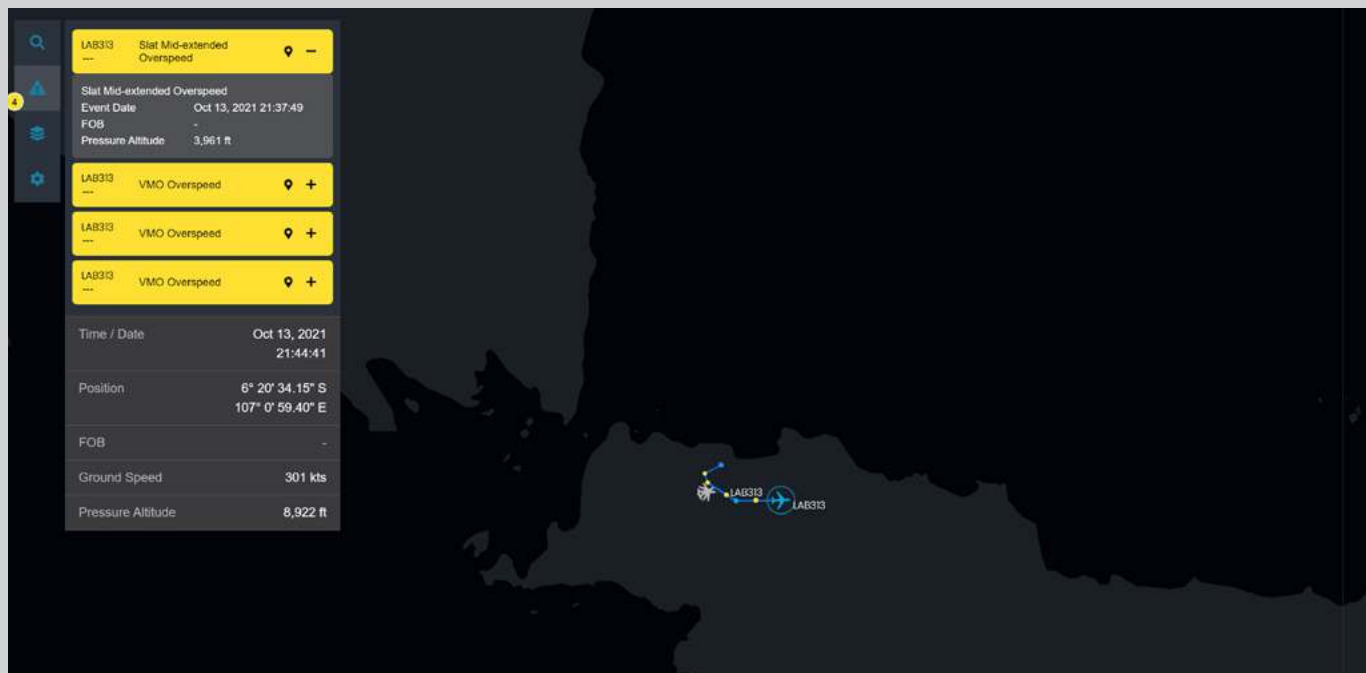
### Related Products

- FuelSense
- AFIRS 228 (B, S, TSO)
- ClearPort
- AFIRS Edge

## Fleet situational awareness at your fingertips



## Real-time awareness of flight and aircraft condition



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# FLIGHT DECK SOLUTIONS FOR EFBS

## CONNECT YOUR EFB TO THE AIRCRAFT AND THE WORLD



- Modularity gives you complete cost and capability control
- Future-proof with 5G
- Cutting edge application hosting

**Engineering and integration services tailoring the best solution for your needs and your budget.**

**Integrated solutions include:**

- Power to your EFB – flexible port configurations not tied to STC changes
- Aircraft Interface Device (AID) – A834 ADIF with ADBP
- Global connectivity options
- Wired, WiFi and Bluetooth options to fit your needs

**EFB data connectivity available:**

- Global airport data connectivity (5G/4G/3G)
- Integration with existing onboard broadband
- Pole-to-pole in-flight IP connectivity with Iridium Certus SATCOM
- ADS-B IN receiver for situational awareness applications

**Low maintenance enabled by remote configuration, management, and system health monitoring.**

**System Interfaces include:**

- Aircraft data access through A429, A717, RS232, RS422, and discretes
- Network interfaces including Ethernet and USB
- Bluetooth and WiFi wireless access point

**Related Products:**

- Multi-Channel WQAR
- AFIRS Analytics ACMS over IP
- ACARS over IP
- GADSS solutions
- JetBridge Applications

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# FUELSENSE

SAFE AND ACTIONABLE FUEL EFFICIENCY



**Providing targeted guidance through impactful decision support**

**Drive operational change with quantifiable data**

## Discover the “fuel leaks” in your operation

- **Monitor** the effectiveness of operational policy and fleet changes right inside the program
- **Quantitatively understand** fuel efficiency at each phase of flight to improve flight crew procedures
- **Proactively manage** and minimize APU use
- Gain insight into **and prevent** gate arrival delays
- **Minimize** the cost of carriage and apply your learning to flight planning procedures
- **Compare** real flight data to how the flight was planned to highlight opportunities for improvement
- **Identify** the likelihood of various unplanned events and the relevant amounts of fuel required, allowing flight dispatchers the ability to learn to safety and confidently plan less fuel

Customized tracking and analysis solutions are effortless with FLYHT’s team of developers, data scientists and subject matter experts

Complement FuelSense with the complete JetBridge product suite to further enhance your awareness of, and reaction to, fuel efficiency challenges

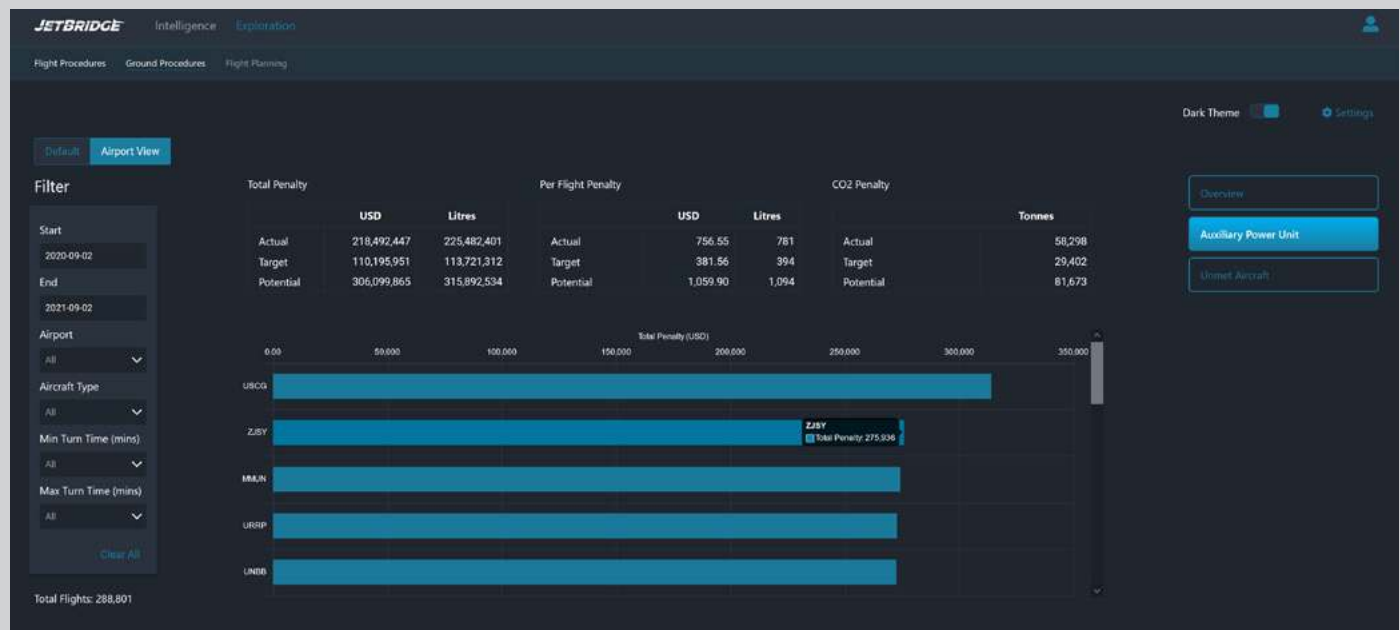
### Related Products:

- FleetWatch
- ClearPort
- AFIRS 228 (B, S)
- AFIRS Edge

## Forecast definitive savings



## Manage multiple initiatives with an intuitive interface



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# Iridium Global Voice & Data Communications System



- Enhanced Communications
- Track & Monitor your Aircraft
- Improve Dispatch Reliability
- Lower Operating Costs

## FLYHT'S AUTOMATED FLIGHT INFORMATION REPORTING SYSTEM (AFIRS™) 228 PROVIDES AIRLINES WITH RELIABLE VOICE AND DATA SERVICES USING IRIDIUM'S GLOBAL SATELLITE NETWORK.

AFIRS is an Iridium based SATCOM device installed on the aircraft that uses FLYHT's proprietary software to acquire and transmit aircraft data to the ground in real time, where it is then processed and distributed to the customer using FLYHT's ground server network called UpTime™. A separate Aircraft Configuration Module contains the SIM card, system configuration information and user-stored information making the AFIRS 228 a true line replaceable unit. The AFIRS 228 has extensive and expandable interface capabilities that allow it to connect to numerous aircraft systems and comes complete with a built in QAR.

Data-based services include enhanced global flight tracking, event triggered FDR streaming, two-way text messages (iPad, MCDU), real-time proactive aircraft health monitoring solutions including fuel management, plus a whole lot more.

# Product Overview

## FLYHTVoice™

FLYHTVoice provides a rapid, dependable, private communication channel for your flight deck using the Iridium satellite network. Empower your dispatch to communicate updated information to the flight crew as soon as it's available. FLYHTVoice is especially useful for managing irregular operations such as weather diversions, mechanical breakdowns and any other unforeseen situations as well as when operating in remote regions with little to no VHF/HF coverage.

## FLYHTMail™

Make it easy for the flight crew and dispatch personnel to keep each other updated on the progress of their flight. FLYHTMail offers extended character-rich, two-way text messaging capabilities fully integrated through the MCDU, iPad and aircraft situational display for ease of use. From departure to arrival, FLYHTMail ensures your airline is capable of communicating in a timely and effective manner.

## FLYHTLog™

FLYHT offers enhanced global flight tracking capabilities that meet and exceed ICAO's Global Aeronautical Distress and Safety System definitions for both normal and abnormal tracking. Specific features include built in visual and audible alerts along with email/text notifications, access to historical data, as well as fully configurable automated, manual and autonomous distress tracking capabilities down to a minimum resolution of 20 seconds. With FLYHT's technology, our customers are able to remotely configure their software directly from their custom ground user interface.

AFIRS is unsurpassed when it comes to automating the collection and dissemination of block and flight times. Accurate OOOI times translate directly into optimal crew utilization ensuring flight crews don't time-out ahead of schedule. Accurate hour and cycle information also extends the time between maintenance intervals, maximizing utilization of life-limited parts. Precise OOOI times lead to financial savings for operators on a power-by-the-hour contract, or lease contracts with a utilization component.

## FLYHTASD™

FLYHT's aircraft situational display (ASD) is a fully integrated and interactive enhanced global flight tracking solution that comes complete with its own built-in alerts and notifications that makes tracking the progress and monitoring the status of your aircraft seamless. Enjoy all the benefits the FLYHTLog product has to offer, plus gain access to a worldwide airport database for operational and up to date meteorological information and a fully integrated text messaging interface that allows operators to send and receive text messages to multiple aircraft at any one time.

## FLYHTFuel™

FLYHTFuel uses real-time flight data acquired from the aircraft's onboard systems, and presents the data to operations/maintenance personnel in an easy to read dashboard. The dashboard compares how the aircraft was flown to how it could be flown in order to maximize efficiency and fuel savings. Where compliance has not been met, costs of those variations are shown.

## FLYHTHealth™

### AUTOMATED ENGINE TREND REPORTING

Engine trend data is transmitted automatically in real time from every flight during takeoff and stable cruise. AFIRS reduces pilot workload during flight while also ensuring that consistent, accurate and timely engine data is transferred directly from the plane to your ground crew, manufacturer or a third party for analysis – such as Pratt and Whitney, Rolls Royce, and General Electric – thereby eliminating costly delays and transcription errors.

### REAL-TIME PROACTIVE ENGINE/AIRFRAME THRESHOLD EXCEEDANCE REPORTING

With real-time engine exceedance alerts from AFIRS, airlines are notified immediately when a specific event has occurred that may require further investigation. With real-time engine exceedance alerts, you know in advance exactly when and where to look for events that may require immediate action or further investigation. The alerts enable proactive maintenance of your aircraft, engines and life limited parts.

### REAL-TIME REMOTE SYSTEMS DIAGNOSTICS CAPABILITIES

Reduce the chance of unscheduled maintenance delays by enabling FLYHT's real-time proactive maintenance capabilities. In addition to receiving real-time engine and airframe threshold exceedance alerts, airline maintenance departments now have the capability to diagnose and determine the root cause of the issue long before the aircraft reaches its destination, thereby reducing or eliminating the likelihood of a costly delay or flight cancellations.

## FLYHTStream™

FLYHTStream, enabled by AFIRS, is the only technology in the world capable of streaming Flight Data Recorder (FDR or Black Box) information. Its primary purpose is to provide an alternate means of accessing the flight data normally secured in the FDR. This data can then be used by the accident investigators to begin investigating an air incident immediately or to provide an alternative in the event the FDR cannot be recovered or the data has been compromised.

## ACARS over Iridium

AFIRS CAN-TSO-C159b Iridium SATCOM solution provides airlines with reliable FANS 1/A, ADS-C, CPDLC and ACARS over Iridium messaging capabilities. Benefits offered by FANS include: more efficient route structure, reduced flight times, reduced fuel burns, and enhanced communications between ATC and the aircraft.

# Specifications

## AFIRS™ 228B

### Product Details

ARINC 717 Rx (HBP or BPRZ)	1
ARINC 429 Rx	16
ARINC 429 Tx	7
Discrete Inputs	16
Discrete Outputs	8
Ethernet	4 + 1 (Maintenance)
RS-232 Serial (or RS-422)	4
2-Wire "Tip and Ring"	
Telephony Ports	2
Aircraft Audio System Interface	1
Number of Antennas Required	1
533 MHz Processor	
1.5 million gate FPGA	
Dual Redundant 16 GB Flash Memory Cards	
Functions as Quick Access Recorder	
EFB in-flight connectivity (Including iPad)	

### Designed to Meet the Following Specifications

ARINC 429 Mark 33 Digital Information Transfer System  
ARINC 739A Multi-Purpose Control and Display Unit  
ARINC 741 Aviation Satellite Communication System  
ARINC 761 Second Generation Aviation Satellite Communication System  
ARINC 717 Flight Data Acquisition and Recording System  
RTCA/DO-160F

### FLYHT Certifications

Transport Canada Civil Aviation Approved Manufacturer  
Transport Canada Civil Aviation Approved Maintenance  
and Repair Organization  
FAA, EASA, TCCA STC Approvals

## AFIRS™ 228S - ACARS over Iridium

### Product Details

ARINC 717 Rx (HBP or BPRZ)	1
ARINC 429 Rx	16
ARINC 429 Tx	7
Discrete Inputs	16
Discrete Outputs	8
Ethernet	4 + 1 (Maintenance)
RS-232 Serial (or RS-422)	4
2-Wire "Tip and Ring"	
Telephony Ports	2
Aircraft Audio System Interface	1
Number of Antennas Required	1
533 MHz Processor	
1.5 million gate FPGA	
Dual Redundant 16 GB Flash Memory Cards	
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ARINC 618 Air/Ground Character Oriented Protocol Specification  
ARINC 739A Multi-Purpose Control and Display Unit  
ARINC 741 Aviation Satellite Communication System  
ARINC 761 Second Generation Aviation Satellite Communication System  
ARINC 717 Flight Data Acquisition and Recording System  
RTCA/DO-160G  
RTCA/DO-178C  
TSO C-159B  
SITA VAQ  
ARINC AQP

### LRU Specifications

Chassis L — 12.55", W — 2.27", H — 7.66"  
Mounting ARINC 600 2 MCU  
Rear Mating Connector Size 2 ARINC 600 Receptacle  
Weight 7.0 lbs (3.2 kg)  
SIM Card Housed in Aircraft Configuration Module  
(Avionics Tray)



# Solution Map





# TAMDAR

(TROPOSPHERIC AIRBORNE METEOROLOGICAL DATA REPORTING)

**FLYHT has expanded its product and service offerings as well as its global communication network with the addition of superior real-time high resolution weather data**

## **BENEFITS TO METEOROLOGICAL AGENCIES :**

**Enablement of improved high resolution weather forecasts**

**Airborne data-linked weather**

- Automated "Electronic Pilot Reports" (e-PIREPs)
- Real-time weather downlink

**More accurate forecasting facilitating timely alerts of severe weather events**

**Better aviation forecasts to improve global ATM safety and efficiency**

**Better data quality assurance (QA)**

## **Additional Features Include:**

The TAMDAR system delivers a critical, (and unique), real-time high resolution data stream for improved atmospheric analysis and weather forecasting

Key components of the system include an aircraft mounted sensor, dedicated Iridium based global SATCOM, and ground processing systems

Our SATCOM solution provides real-time global tracking of aircraft, as well as voice and data communication with each aircraft at all times

This real-time global communication capability is flexible, and allows retrieval of aircraft performance/ systems information, including real-time Digital Flight Data Recorder (DFDR) information retrieval

The system has been in operation on commercial aircraft since 2004

TAMDAR is installed across a network of hundreds of commercial aircraft that are operated by more than a dozen partner airlines. It collects thousands of highly detailed and accurate readings from the upper atmosphere each day. In addition to the existing installed base, hundreds of additional aircraft around the world have been scheduled for TAMDAR installations.



# TAMDAR

(TROPOSPHERIC AIRBORNE METEOROLOGICAL DATA REPORTING)

## MEASURES AND REPORTS

- Ambient air temperature
- Winds aloft
- Relative humidity
- Static pressure and pressure altitude
- GPS position and time
- Ice presence
- Turbulence (EDR)
- Indicated and true airspeed
- Low latency data delivery
- Variable sampling rate

## PARTICIPATING AIRLINES / AGENCIES

- AirAsia
- Horizon Air (Alaska Air)
- Aeromexico
- Flybe
- Icelandair
- PenAir
- Ravn Alaska
- Silver Airways
- Malindo Air
- Batik Air
- AGENCIES ---
- NOAA
- Icelandic Met Office

## OPPORTUNITY

A complete “end-to-end” solution:

- Proprietary high impact data from TAMDAR observing system (aircraft-mounted sensors)
- Real time data, from anywhere on the planet (Iridium)
- Better data quality assurance (QA)
- Vertical, horizontal and temporal
- Encryption possible

Net: Superior weather data, forecasting and analytics

Result: Faster decision making, more proactive risk mitigation, lower costs

