



# WHAT IS FANS?

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FANS (Future Air Navigation Systems) is a datalink system that lets pilots and ATC (air traffic control) communicate directly, using digital text transmissions that appear on the CDU (Control Display Unit). Developed by ICAO (International Civil Aviation Organization), Boeing, Airbus, Honeywell, and others, FANS was an early datalink standard.

Data Comm/CPDLC/FANS are components of the FAA's NextGen plans to upgrade the nation's aging aviation infrastructure. Data Comm is the FAA's phrase for digital, text-based messaging, and it may eventually replace voice communication between ATC (air traffic controllers) and pilots. The goal is to automate routine tasks that currently require multiple voice/radio exchanges. Eventually, pilots and ATC will be able to exchange reports, instructions, and flight requests in a digital, text-based format instead of relying on voice communications.

Voice communications can pose significant problems due to indecipherable accents, language barriers, and poor quality RF connections. If the information isn't perfectly clear, both parties repeat requests and information, wasting time and causing delays. Text-based messages are clear and concise, eliminating the need for repetition and clarification. An added benefit is that the entire flight crew can review text messages and instructions from ATC. Benefits extend beyond the cockpit, too, saving time and fuel and increasing safety by giving ATC a more accurate view of where aircraft are in relation to one another.

## **What is Data Comm via Satcom or Iridium (a.k.a. FANS)?**

FANS 1/A is a later standard that was developed to the AFN (ATC Facilities Notification) protocol, and it has two components: CPDLC and ADS-C. Commercial airlines have used FANS 1/A for more than four decades for oceanic surveillance and text-based communications between pilots and ATC.

- CPDLC (Controller Pilot Data Link Communication) is the text-messaging component of FANS 1/A, and it allows two-way, digital communication between ATC and pilots when the aircraft is out of range of the analog-based VHF (very high frequency) or HF (high frequency) voice-radio communications.
- ADS-C (Automatic Dependent Surveillance-Contract) sends information (aircraft position, altitude, speed, and meteorological data) automatically to ATC from the aircraft when ATC has requested it. Pilots do not interact with ADS-C at all, nor can they disable the reporting function. If the flight crew sends a Mayday message, ADS-C automatically triggers a report with time, position information, altitude, and airspeed that goes to ATC.

## **What Equipment Do I Need for Data Comm/FANS?**

The equipment you need varies, depending on the current configuration of avionics in your cockpit. At minimum, you need a FMS (flight management system), a datalink unit, and Satcom.