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Aircraft Communications Addressing and Reporting System (ACARS)

Building trust every day
The Aircraft Communications Addressing and Reporting System, known as ACARS, is the air-to-ground data communications infrastructure hundreds of airlines around the world use to communicate with air traffic control, national aviation authorities and their own operations centers. Airlines use ACARS VHF and HF ground stations as well as satellite communications to send and receive billions of Air Traffic Control (ATC) and Airline Operational Control (AOC) messages every year.

Depending on where the aircraft is and its equipage, ACARS messages are routed through a global network of thousands of ground stations or satellite constellations that cover the earth. When the aircraft is over land a network of VHF stations, including VDLM2 that is 10x the speed of traditional VHF, route and deliver ACARS messages. Over the ocean a message can be delivered via HFDL ground stations, Inmarsat satellite communications or Iridium satellite communications. If the aircraft is over either of the poles it can use HFDL or Iridium.

AOC messages include take-off and landing confirmation, weather information, gate information, and engine reports. ATC messages include navigation information, aircraft positional reporting, departure clearances, oceanic clearances, runway conditions, and weather data. Currently AOC messages take up 80% of ACARS network traffic versus 20% for ATC, but the FAA NextGen program will shift more and more voice communications to data in the near future.

Equipage varies depending on the age and chief use of the aircraft. Typically domestic aircraft have only traditional ACARS (VHF) capabilities and one long range option. Nearly all aircraft produced before 2000, domestic or long-haul, have only traditional ACARS. Aircraft produced today however are equipped to support traditional VHF and VDLM2. Most all are equipped for either Inmarsat or Iridium, but not both.
About Rockwell Collins

Rockwell Collins is a pioneer in the development and deployment of innovative communication and aviation electronic solutions for both commercial and government applications. Our expertise in flight deck avionics, cabin electronics, mission communications, simulation and training and information management is delivered by a global workforce, and a service and support network that crosses more than 150 countries. To find out more, please visit www.rockwellcollins.com.

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