

# MCS-4200/7200 Satellite Communications



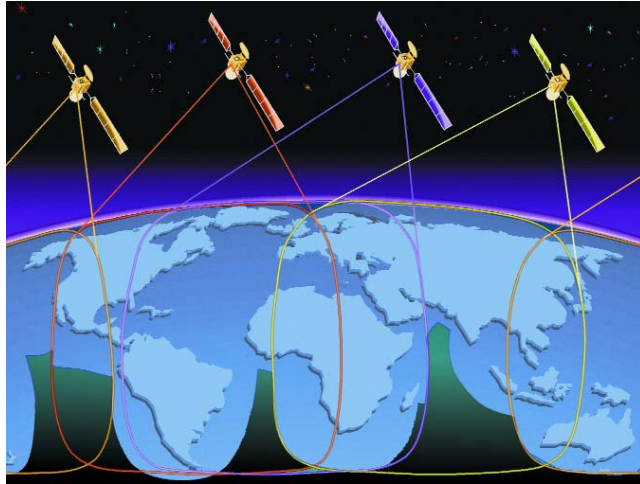
**BECAUSE YOUR BUSINESS DOESN'T  
STOP AFTER TAKEOFF**

**Honeywell offers a full range  
of SATCOM products**

**Honeywell**

## Worldwide coverage

Your SATCOM-equipped aircraft is assigned its own telephone number, enabling ground-to-air contact. To call the aircraft from the ground, the message (voice, fax or PC data) is sent over traditional telephone lines to a ground earth station (GES). The GES transmits the information digitally to the satellite in the Inmarsat constellation that covers the region over which the aircraft is flying. For air-to-ground communication, the process is reversed. The Swift64 and SwiftBroadband data communications are routed in much the same manner using a dedicated IP address for the plane.



Typical I-3 spot beam coverage providing Swift64 service

The Honeywell SATCOM comes with a unique feature called voice pacifiers, which provide connection information as your call is being processed.

Inmarsat is the sole operator of the SATCOM satellite constellation and coordinates the space portion of your call. For ground transmission, you may select the provider(s) of your choice.



## Total systems solutions

Honeywell brings its proven expertise to the integration of SATCOM-related systems: inertial reference, flight management, global positioning, aircraft communications addressing and reporting system (ACARS), communications management, cabin telecommunications, fax, as well as on-board and In-Flight entertainment networks. Our expertise makes us uniquely qualified to provide the total systems solutions that you need today and will require in the future.



# No one can afford to be out-of-touch

**In today's fast-paced world, people have become accustomed to being in-touch wherever they are — at home, in the car, in the office... or flying 30,000 feet above the earth.**

## **MCS-4200/7200 SATCOM with Swift64 and SwiftBroadband**

That's why so many business executives have turned to Honeywell for satellite communications. Our SATCOM systems provide first-call connection with the clarity and uninterrupted signal of a digital office telephone. We have become renowned for providing world-class voice, data and fax communications for more than 3,000 airplanes. Now we've added the ability to provide a high-speed data connection that offers access to the Internet and e-mail at speeds of up to 256 kilobits per second (kbps), with a clear growth path to more than triple those speeds. When coupled with the planes on-board network, passengers and crew will have efficient and convenient access to:

- **E-mail** – Use your laptop and e-mail application without any modifications, for full access to private or corporate e-mail accounts.
- **Internet** – Get the latest news and information by browsing your favorite web sites.
- **Corporate network** – Transfer files to or from your corporate network using the Inmarsat satellite data link networks.
- **Video conferencing** Conduct a video teleconference from the comfort of your plane.

On the flight deck, the crew has direct, digital voice connection with Air Traffic Control (ATC), for all of the world's airways. Digital data flows automatically reporting time, position, altitude and a host of other aircraft information. The digital voice link provides high-quality communications for both the flight deck and passenger cabin, suffering none of the atmospheric variables of high frequency radio communications. Honeywell SATCOM moves your aircraft one step closer to the capabilities needed for the emerging free flight environment — known as CNS/ATM, or Communication, Navigation, Surveillance/Air Traffic Management. Beyond SATCOM, Honeywell is pioneering the development of products and systems to meet the challenges of CNS/ATM, which includes point-to-point communications, navigation, surveillance and precision approach capabilities.

## **The full line of Inmarsat Aeronautical Systems**

Aero-H+, Aero-I, Swift64 and growth to SwiftBroadband.





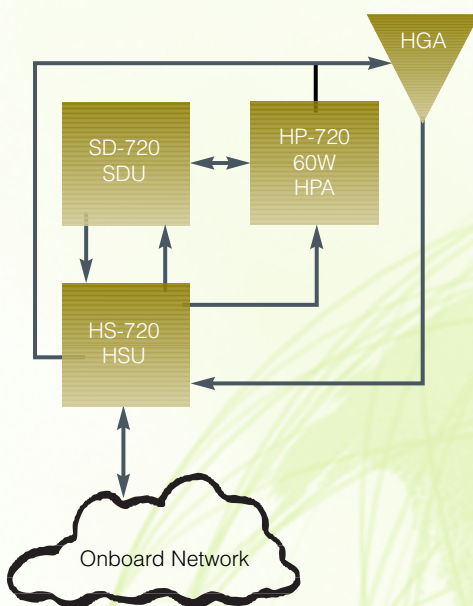
## System components

The MCS-4200/7200 SATCOM system includes a six-MCU satellite data unit (SDU), an eight-MCU high power amplifier (HPA) and a four-MCU high-speed data unit (HSU).

The SDU provides overall system control and monitoring, data modulation and demodulation, data synchronization decoding, voice coding, decoding for the flight deck and passenger voice, and data services.

The HPA is a linear amplifier that provides 60 Watts of power to generate the output for broadcast toward the satellite.

The HSU provides four dedicated Swift64-channels in a single Line Replaceable Unit (LRU). These four channels can be utilized in any manner of circuit-switched (M-ISDN) or packet-switched (MPDS) combinations and can also be multi-linked to provide a maximum throughput of up to 256 kbps. In addition to the four Swift64 channels, the HSU also includes the internal integration of both an RF splitter and RF combiner, to facilitate routing of the RF signals, as well as a rudimentary network hub to support a flexible interface to the on-board network.



## CNS/ATM environment

SATCOM provides the communications element of the emerging CNS/ATM environment being developed and implemented by the world's air traffic authorities.

Many airlines and corporate operators are already taking advantage of optimized routings and altitudes provided for in the Future Air Navigation System (FANS). As automatic dependent surveillance (ADS) and direct controller/pilot data link communication (C/PDLC) are implemented, these benefits will be realized on a global scale.

By safely reducing aircraft separation requirements, transoceanic capacity can be increased. Airline routes can be optimized for maximum efficiency, which means fewer delays, greater safety and the potential for tremendous cost savings.

## Growth capability - SwiftBroadband

Inmarsat's Swift64 service provides the communications pipeline for high-speed worldwide coverage through their 64 kbps per channel satellite data link. For even greater speed and channel capacity, Inmarsat has initiated the implementation of their next-generation satellites, the Inmarsat-4 series, which supports voice and data communication services at data rates of up to 432 kbps per channel. This new service carries the Inmarsat brand of SwiftBroadband. We have already implemented the SwiftBroadband hardware into the HS-720 design. This makes the HS-720 SwiftBroadband-ready, which means that you will be able to upgrade the HS-720 easily via a Honeywell Field Service Bulletin. The upgrade takes you from a four-times 64 kbps capability to a two-times 432 kbps capability. HS-720 functionality will include the ability to operate in a variety of configurations. These configurations include any combination of up to four channels of Swift64, or two channels of SwiftBroadband, or two channels of Swift64 and one channel of SwiftBroadband.

The first two I-4 satellites are now operational and the SwiftBroadband service is forecast to be available in mid 2007. The third, and final, I-4 satellite is scheduled to complete the SwiftBroadband constellation in the second half of 2006 when it is launched into the Pacific Ocean Region.

## More about the HS-720 HSU

The HS-720 high-speed data unit (HSU) is actually our third generation of Swift64 technology products. The previous products addressed the needs of the early-adopters and provided solutions that offered first one, and then two, dedicated 64 kilobits per second (kbps) circuit-switched or packet-switched data channels. When all four Swift64 channels are combined, users achieve a maximum throughput of up to 256 kbps, making Internet web browsing, or e-mail transmission and receipt much more practical. Like these earlier high-speed data products, the HS-720 complements the SDU and HPA, and shares the already installed High Gain Antenna (HGA) subsystem, resulting in a SATCOM system that provides simultaneous safety services and passenger communications.

SDU, HSU, HPA



## Systems Specifications

### MCS-7200 (7-Channel Classic Aero System)

Components	Size	Weight	Operating Temperature
SDU	6MCU	25.0 lbs	-55° to + 70°C
HPA	8MCU	32.0 lbs	-55° to + 70°C
HSU	4MCU	15.0 lbs	-55° to + 70°C

### MCS-4200 (7-Channel Classic Aero System)

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HSU	4MCU	15.0 lbs	-55° to + 70°C

## **Worldwide customer support**

Honeywell's Aerospace Business & General Aviation Customer Services provides avionics support solutions worldwide, including repair and overhaul, spare parts and exchange pools, pre-owned equipment, technical support, integrated service programs, technical publications, and training for airlines, business aviation and general aviation. The total mix of Honeywell Customer Services is tailored to meet individual customer needs.

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