Thrane & Thrane

AERO-HSD+

Satellite communication for airplanes with integrated high speed data

The Aero-HSD+ is a complete aeronautical communications solution. It offers satellite transmitted phone, fax, cockpit data and high speed data services in one system, a solution that is smaller and lighter than any comparable satcom solution.

Features

The Aero-HSD+ from Thrane & Thrane gives business and VIP jet users access to the Inmarsat Aero-H+ and Swift64 services in one integrated system. It is the most powerful airborne satcom system available today.

- Unique multi-channel solution, integrating the Inmarsat Aero-H+ and Swift64 services
- Extremely compact and light-weight
- Two channels for voice, fax and PC modem data allows simultaneous phone and fax or two simultaneous phone conversations
- One channel for global cockpit data (AFIS/ACARS)
- Ready for the future "free flight" environment known as CNS/ATM
- Fast data transmission at up to 64 kbps
- Optional Dual Swift64 providing 128 kbps
- Pay either by the minute or by the bit
- Ethernet for in flight network
- ARINC 741 antenna compatibility
- Supports all current standards for secure voice and data transmission (FNBDT, STE, STU)

Light in weight, not in possibilities

Installing communication equipment in a jet plane often means giving up on other options. Not so with the Aero-HSD+, which is no more than 6 MCU altogether. It is thus perfect to replace older and heavier systems, thus freeing up space for additional payload or fuel savings. Despite its small footprint the Aero-HSD+ is a no-compromise solution for the demanding business jet user giving access to:

- Phone and fax services
- E-mail servers
- Large file transfers
- Internet browsing
- Videoconferencing and streaming
- Corporate servers via VPN

Inmarsat aeronautical satellite communication services

Inmarsat is a global satellite communications system based on geostationary satellites orbiting along the Equator. Inmarsat provides fast and reliable contact through a worldwide network of Land and Ground Earth Stations, which can be reached from any destination except the extreme North and South Poles.

Aero-H+

Inmarsat's primary aeronautical service offers phone, fax and data services for passenger, administrative and Air Traffic Control communications on board commercial, corporate and general aviation aircraft worldwide. Aero-HSD+ incorporates three Aero-H+ channels: two channels for global voice, fax and PC modem data and one channel for global packet data (cockpit communications).

Swift64

The Inmarsat Swift64 service offers fast data transmission. It provides both the high quality and speed of a full ISDN service and the cost effective flexibility of a full IP service (MPDS). For VIP, corporate and government users, this combination offers unmatched access to modern communications. The Swift64 channels of the Aero-HSD+ works equally well with both.

Swift64 Mobile ISDN

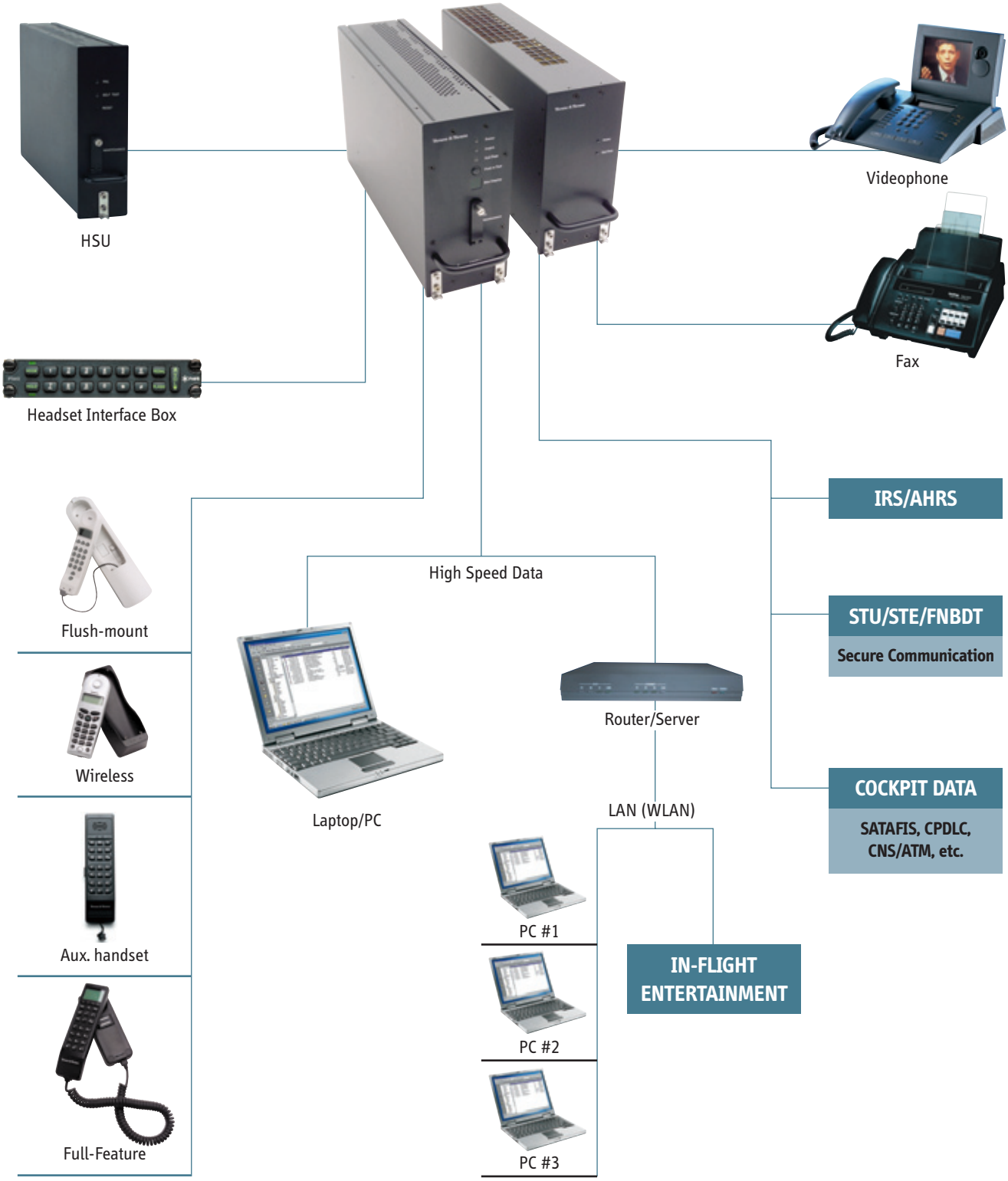
The Integrated Services Digital Network (ISDN) offers up to 64 kbps per channel for voice, G4 fax, data communications etc. ISDN is the preferred option for transmitting larger files, such as compressed video, digital images or graphics. ISDN traffic is charged by the length of time the user remains on-line.

Swift64 Mobile MPDS

The Mobile Packet Data Service (MPDS) offers up to 64 kbps of full TCP/IP connectivity sharing the channel. MPDS charges "per megabit", which means that you are charged only for the amount of data transmitted – not for the time you remain connected. Specifically designed for fast, short-burst and inexpensive data transmissions, MPDS is ideal for e-mail, Internet and airborne IP servers.

Configuration

The core of the standard Aero-HSD+ solution are a Satellite Data Unit and a High Power Amplifier. It has a built-in cabin telephone unit allowing you to connect up to six handsets (standard or wireless), and two RJ-11 connectors for connecting fax machines, PC modems, headset interface boxes etc. ISDN, Ethernet and Serial Interfaces secure easy connections directly to laptop PC's or a router/server. The detachable configuration module contains all settings. This makes it very easy to replace or upgrade the satellite data unit (SDU) or the optional high-speed unit (HSU). ARINC 741 compatibility ensures a straightforward interface to all current high gain antennas.



TT-5035A
Satellite Data Unit (SDU)

Features

- Seamless integration of Aero-H+ and Swift64 services into one unit
- Low weight and power consumption
- Compact 3 MCU size
- No forced cooling required
- Built-in CTU connects up to six (standard or wireless) handsets incl. two 2-wire (RJ-11/POTS) interfaces - no converter box required. Features such as intercom, conference calling, call forwarding etc. are all included
- Detachable Configuration Module (CM)
- Built-In Test Equipment (BITE)
- ARINC 429 for IRS, AHRS, ACARS, MCDU, CMU, AFIS, CPDF
- RS-232C port for Portable Data Loader/Configuration Management Terminal (PDL/CMT)
- Ethernet connectivity
- ISDN connectivity
- RS422 connectivity

Characteristics

TT-5035A SDU

Dimensions:	ARINC404A 3/8 ATR short,3 MCU. (320,5 x 90,4 x 193,5 mm)
Mass:	7.7 lbs (3,5 kg)
Power:	28 V DC, 30 W typ. 50 W max. Includes handsets, DLNA, interfaces.
Connectors:	Rear: ARINC 404A Front: SUB-D 15 Female.
Environmental:	Temperature: -25 °C to +55 °C Altitude: MSL to 55.000 ft
DO-160D string:	[(A1)(F1)X]CAB[(S2B2)(SM)] EXXXXXZ[A()B]Z[RR]M[A3E3] XXA

TT-5014A
High Power Amplifier (HPA)

Features

- Small size (3 MCU), low weight and low power consumption
- No external forced cooling required
- Installation outside pressure area

Characteristics

TT-5014A HPA

Dimensions:	ARINC 404A 3/8 ATR short,3 MCU. (320,5 x 90,4 x 193,5 mm)
Mass:	11.2 lbs (5,1 kg)
Environmental:	Temperature: -55 °C to +70 °C Altitude: MSL to 55.000 ft
DO160D string:	[(A2)(F2)Z]BBB[SCL]EXXXX XZ[A()B]A[A()B]Z[RR]M[A3E3] XXA
Power:	28 V DC.
Power consumption:	10 - 235 W
Power output:	30 W linear

TT-5035A-001
Configuration Module (CM)

Features

Located at the rear of the SDU, the Configuration Module (CM) contains detailed information on the satcom installation including:

- ICAO address and Swift64 ID
- Log-on policy (manual or automatic)
- Ground Earth Station (GES) preference table
- Details on coax cable losses
- Antenna configuration
- Handset setup, configuration and ring policy
- Phone directory
- Selection of navigational input for antenna steering
- PIN code activation/deactivation

The above parameters may be accessed using any one of the 4-wire handsets or a laptop/PC connected to the RS-232 port on the SDU and running the Aero-HSD+ Configuration Program (HSD+CP).
The CM may be removed/ inserted for easy SDU/HSU exchange - ensuring quick turn around and less time on the ground.

Characteristics

TT-5035A-001 CM

Dimensions:	1.79" x 1.85" x 0.79" (45,5 x 47 x 20 mm) (L x W x H)
Mass:	0.15 lb (70 g)

TT-5620A/TT-5622A
Full-Feature Handset and Cradle

Features

- Handset with 2 x 12 character backlit LCD for configuration and system status
- Cradle with RJ-11/POTS socket for direct connection to fax, PC modem etc.
- 4-wire and RS-485 interface
- 28 V DC/0.15 A from SDU
- Speaker for hands-free operation
- Available in black or white

Characteristics

TT-5620A Handset

Dimensions:	200 x 52 x 47,5 mm (L x W x H)
Mass:	0.68 lbs (310 g)

TT-5622A cradle

Dimensions:	160.5 x 61 x 28.4 mm (L x W x H)
Mass:	0.60 lbs (270 g)
DO-160C string:	A1-BA[MNB]XXXXXXAXXXB [UR]ZXXE3XX

TT-5621B/TT-5622B
Aux. Handset and Cradle

Features

- Auxiliary handset and cradle
- 600 W ETSI TBR 21 interface
- Adjustable ringer
- 10 memory locations (speed dial)
- Stand-alone use (i.e. no cradle)
- Available in black or white

Characteristics

TT-5621B Handset

Dimensions:	200 x 52 x 47,5 mm (L x W x H)
Mass:	0.49 lbs (220 g)

TT-5622B Cradle

Dimensions: (L x W x H)	160.5 x 61 x 28.4 mm
Mass:	0.43 lbs (200 g)
DO-160D string:	[A1X]CAB[(SMB2)(SM)(UFF1)] XXXXXXAXXXB[RRR]M[A2E3] XXA

OPTIONAL EQUIPMENT

TT-5012A
Diplexer/Low Noise Amplifier (DLNA)

Features

- Exceeds ARINC741 Type A diplexer specifications
- 42 dB LNA gain

Characteristics

TT-5012A DLNA

Dimensions:	Flatpack 268,7 x 194 x 49,5 mm (L x W x H)
Mass:	5.8 lbs (2,6 kg)
DC power:	<1.6 W from SDU via RX coax. TX Port-to-Antenna loss: <1 dB
Environmental:	Temperature: -55 °C to +70 °C Altitude: MSL to 55,000 ft
DO-160C string:	[A2F2]-BA[CLY]XXXXXXA [AB]A[AB]Z[UR]ZA3E2XX
General:	DC feed through from TX port to antenna port

TT-5038A
High Speed Unit (HSU)

Features

- Additional High Speed Data channel based on the Swift64 Services
- Low weight and power consumption
- Compact 2 MCU size
- No forced cooling required
- Easy integration

Characteristics

TT-5038A HSU

Dimensions:	ARINC404A 3/8 ATR Short, 2 MCU (320,5 x 57,1 x 193,5 mm)
Mass:	4,63 lbs (2,1 kg)
Power:	28 V DC, 13 W typ. 23 W max.
Connectors:	Rear: ARINC 404A Front: SUB-D 9 Female
Environmental:	Temperature: -25°C to +55°C Altitude: MSL to 55.000 ft
DO-160D string:	[(A1)(F1)X]CBB[(S2B2)(SM)] EXXXXXZ[A()B]A[A()B]Z[RR] M[A3E3]XXA

TT-5038A-002 Tx Coupler for HSU

Dimensions:	106.6 x 57.1 x 22.4 mm including connectors (L x W x H)
Mass:	0.50 lbs (230 g)
Connectors:	3 x N-connectors, Female
Environmental:	Temperature: -25°C to +55°C
Altitude:	55,000 ft
DO-160D string:	[(A1)(F1)X]CBB[SCL]EXXXXX ZXXXZ[RR]M[A3E3]XXA

TT-5038A-003 Rx Power Splitter for HSU

Dimensions:	86.8 x 50.8 x 19.1 mm including connectors (L x W x H)
Mass:	0.32 lbs (146 g)
Connectors:	3 x N-connectors, Female
Environmental:	Temperature: -25°C to +55°C
Altitude:	MSL to 55,000 ft
DO-160D string:	[(A1)(F1)X]CBB[SCL]EXXXXX ZXXXZ[RR]M[A3E3]XXA

WORLD LEADERS IN SATELLITE BASED COMMUNICATION

Thrane & Thrane is world leader in terminals and land earth stations based on the Inmarsat satellite services. Around 300,000 Inmarsat terminals have been sold worldwide. More than 100,000 of these have been delivered by Thrane & Thrane.

In aeronautical applications, Thrane & Thrane offers strong solutions for business, corporate and VIP aircraft. Our systems fit on nearly any aircraft type due to their very compact size and low weight.

Innovation without Limits

Our focus on new technology development and constant innovation has assured us a position as preferred development partner for Inmarsat. Creating the broadband infrastructure of the future, Thrane & Thrane has been commissioned to develop the Radio Access Network for Inmarsat's BGAN high-speed satellite system. Just one proof of how we continue to bring new, innovative solutions to the market.

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