Thrane & Thrane A/S

Aero-HSD+

User Manual

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Table of Contents

Chapter 4 Operation

About the Manual

Overview

This manual is a user manual for the Aero-HSD$^+$ System.

The Aero-HSD$^+$ system makes it possible for you to communicate from virtually anywhere in the world using the Inmarsat® Swift64 and H$^+$ services established by Inmarsat.

The manual contains the following chapters:

- **Introduction** - an overview of the Inmarsat Aero system and its services. Also a brief description of the Aero-HSD$^+$ system.
- **Getting started** - a description of how to start up the system and the use of pin codes.
- **Operation** - a detailed description of the menu system in the terminal, and a description of the call functions.
- **PC Connection** – a description of how to set up a computer for use with the Aero-HSD$^+$ system.
- **Troubleshooting** – a short troubleshooting guide and a description of the error messages that may appear in the handset. Also a list of Cause codes and information on where to get further help if necessary.

Audience

The audience of the manual includes aircraft personnel and users of the system.

Software Version

This manual is intended for the Aero-HSD^{+} system with the following software:

Aero-HSD^{+} Application Code **1.06** or greater.

Related Documentation

Apart from the User Manual, the following related documentation applies to the Aero-HSD^{+} system:

Title and Description	Document Number
Aero-HSD^{+} Quick Guide Contains short instructions for the daily use of the Aero-HSD^{+} system.	TT-99-119960
Aero-HSD^{+} Installation and Maintenance Manual Contains extensive information for the personnel who install the system in the aircraft.	TT-98-113625

Introduction

The Inmarsat Aero Service

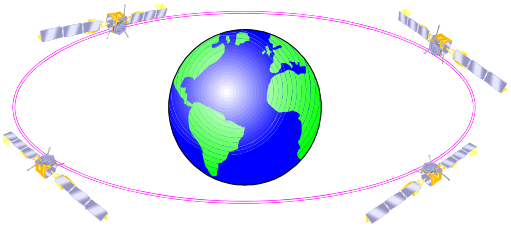
Overview

The Inmarsat Swift64 (also called High Speed Data or HSD) and H$^+$ services are based on 4 Geostationary 3rd generation satellites situated above the equator. Geostationary means that the satellites are always located in the same position, i.e. they rotate at the same speed as that of the earth.

Each satellite covers a certain area (footprint) and supports a number of powerful spot-beams making the service available in virtually anywhere on the earth between approximately 70°N and 70°S.

Note: The ISDN (Integrated Services Digital Network) and MPDS (Mobile Packet Data Service) services are only available on Aero-HSD$^+$ systems when the aircraft is positioned inside an area with Spot Beam coverage.

The 4 Geostationary Inmarsat Satellites



The satellites are your connection to the worldwide networks, and they are managed by the Network Co-ordination Stations (NCSs), run by Inmarsat. The primary functions of the NCSs are to constantly

keep track of which terminals are logged on to the system, and assign a free channel when a call is made.

The Earth Stations

The gateway between the public network and the satellites is operated by a LES (Land Earth Station) for the high speed data communication or GES (Ground Earth Station) for the global voice, fax and PC modem data capabilities. The LESs and GESs are run by different operators around the world.

Supported Services

The services supported by Inmarsat comprise:

High speed services

- 64 kbit/s universal data
- 56 kbit/s universal data
- Speech
- 3.1 kHz audio
- MPDS (Mobile Packet Data Service)

Low speed services

- Voice
- Fax
- Data
- Packet Data Channel

For a more detailed explanation of the services, please refer to the section **Service Explanation** on page 6.

Application Examples

The above mentioned services allow for a wide range of applications. Examples are shown below.

Important notice: Before a terminal can be used on the network, it has to be commissioned by one of the ISPs (Inmarsat Service Providers). For further information on commissioning, refer to our site http://www.tt.dk/aero/isp

Service Explanation

The H^+ services have a lower tariff than the high speed services, which are high quality audio or high speed data services and thus require more bandwidth.

High Speed Services

The **64 kbit/s UDI** (Unrestricted Digital Information) service enables the bi-directional transmission of data to and from terrestrial 64 kbit/s **ISDN** networks. The **56 kbit/s Data** service is similarly used to make a connection to 56 kbit/s ISDN networks, which are primarily used in North America.

The **Speech** and **3.1 kHz audio** services make it possible to establish high quality analogue connections with quality equal to terrestrial analogue connections via digital networks/switches. The **Speech** service is used for high quality voice connections, whereas **3.1 kHz audio** can be used to transfer analogue signals between fax machines and modems with an analogue 2-wire interface. The 3.1 kHz audio service is transparent, and is suitable for all analogue applications including secure telephones.

The **MPDS service** is a packet data service where the tariff depends on the amount of data transmitted. This service is a more cost-effective solution for web browsing, and other applications where there is no need for constant transmission of data in both directions. It is also suitable for applications where a constant connection is required, because the user is no longer charged the “per minute rate”.

H+ Services

The H+ service supports near terrestrial-quality **Voice** at 4.8 kbit/s, over two different physical channels in both global- and spot beam. This means that the user is able to have 2 voice connections up at all times. This can be two incoming, two outgoing or one incoming and one outgoing connection. This service is less expensive than an ISDN connection, with only a small cost in voice-quality.

Besides using the two voice-channels for voice, one or both of the channels can be used for a **modem** or **fax** connection. In both circumstances, the maximum bit rate is 2.4 kbit/s. The fax or modem can be connected to the two-wire interface. If a fax or modem uses a channel, this channel cannot be used for voice at the same time.

H+ also provides a low speed **packet data** mode, which allows data transfers at up to 1.2 kbit/s. This service can be used by an AFIS (Automatic Flight Information Service), ACARS (Aircraft Communication Addressing & Reporting System) or CMU (Communications Management Unit) to send data over the satellite link.

The Aero-HSD$^+$ System

Features

The Aero-HSD$^+$ System is a unique multi-channel solution, combining the global voice, fax and PC modem data capabilities of the Inmarsat Aero H$^+$ service with the Inmarsat Swift64 aeronautical High Speed Data service.

The Aero-HSD$^+$ system provides the following features:

- One 64 kbit/s High Speed Data channel, optionally 128 kbit/s
- 2 global voice, fax and PC modem data channels
- 1 channel for cockpit data
- Euro ISDN S-bus interface for large file transmissions, videophone etc.
- MPDS “pay by the bit” – well suited for Internet, e-mails etc.
- Call Routing - custom routing of outgoing calls
- RS-422/Ethernet for airborne server/IP router
- STE (Secure Telephone Equipment)/STU (Secure Telephone Unit) for secure, encrypted transmissions
- ARINC 741 antenna compatibility
- Chelton HGA-7000 antenna compatibility
- Small, compact and light-weight system
- Easily upgraded to the next generation Inmarsat high speed satellite platform (BGAN)

System Components

The Aero-HSD^{+} System includes the following system components:

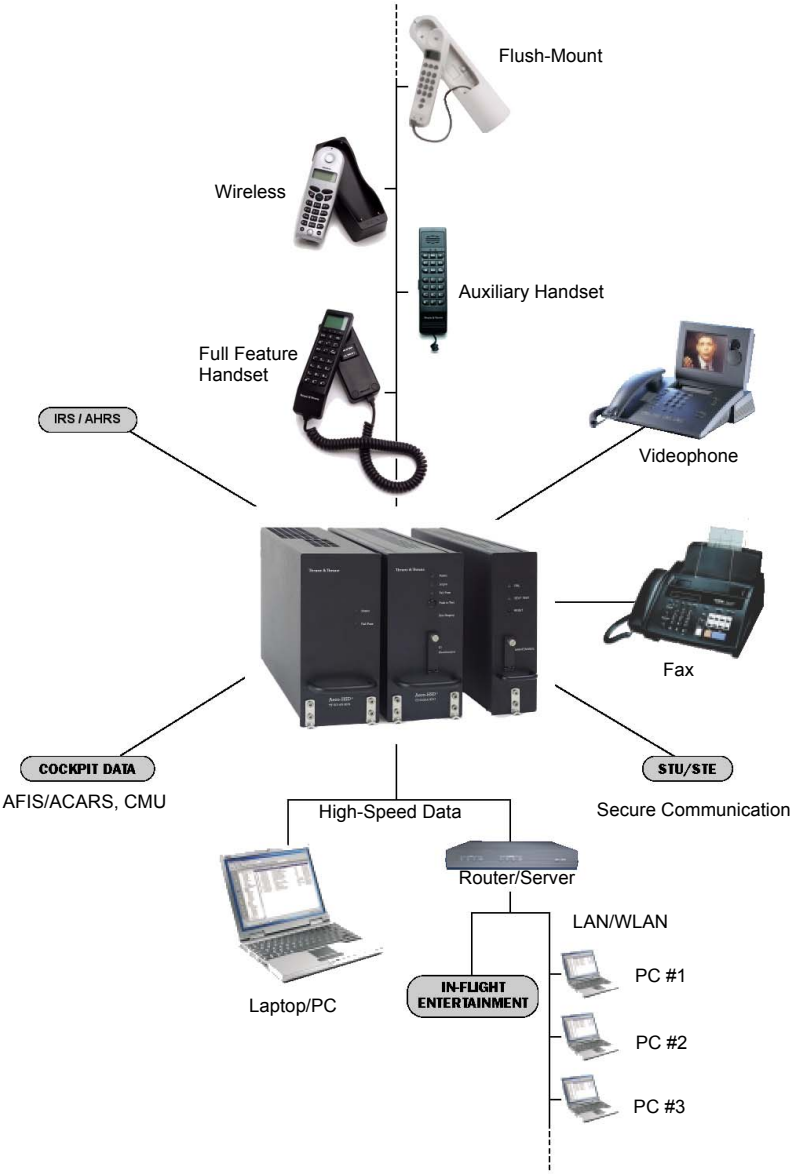
- TT-5035A Satellite Data Unit (SDU)
- TT-5035A-001 Configuration module (CM)
- TT-5014A High Power Amplifier (HPA)
- TT-5038A High Speed data Unit (HSU)
  (Optional additional high speed data channel)
- TT-5620A Full Feature Handset
- TT-5622A Full Feature Cradle
- TT-5621B Auxiliary Handset
- TT-5622B Auxiliary Cradle
- Accessories (manual, software, etc.)

A minimum working system has one TT-5035A SDU, one TT-5035A-001 CM, one TT-5014A HPA, one handset and cradle plus a High Gain Antenna system.

A full system may comprise up to six handsets, two of which are using the 2-wire POTS interfaces, which can also be used for faxes, PC modems, headset interface etc.

Instructions on how to assemble the system are found in the Installation and Maintenance Manual, together with specifications and information on wiring.

The Aero HSD+ System with Various Options



The TT-5035A Satellite Data Unit (SDU) and the TT-5014A High Power Amplifier (HPA)

TT-5035A Satellite Data Unit (SDU)

The SDU is the controlling unit of the Aero-HSD^{+} system. A Configuration Module (CM) and all the interfaces, except for the maintenance port, are located on the rear of the TT-5035A Satellite Data Unit (SDU).

TT-5014A High Power Amplifier (HPA)

The High Power Amplifier (HPA) is a Linear High Power Amplifier capable of amplifying the transmission signals of all 4 Aero-HSD^{+} channels simultaneously.

TT-5038A High Speed Data Unit (Option)

The High Speed data Unit (HSU) is an optional additional high speed unit, providing an extra 64 kbit/s channel.

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

The Full Feature handset is used to configure the system and to make and receive calls.

See **The Full Feature Handset** on page 15 for a description of keys, LED's and display of the Full Feature handset.

TT-5621B Auxiliary Handset and TT-5622B Auxiliary Cradle

The Auxiliary handset is used to receive and to make calls.

See **The Auxiliary Handset** on page 25 for a description of the keys and LED's of the Auxiliary handset.

Sigma^7 Handset and Cradle

The Sigma^7 handset is used to receive and to make calls.

See **Using the Sigma^7 Handset** on page 45 for a description of how to use the Sigma^7 handset.

2.4GHz Cordless Phone

The 2.4GHz Cordless phone system is used to receive and to make calls.

See **Using the 2.4 GHz Cordless Handset** on page 46 for a description of how to use the 2.4GHz Cordless phone.

The Full Feature Handset

Overview

The Full Feature handset is the primary interface for the Aero-HSD^{+} system. With the Full Feature handset you can dial numbers, view error and status messages, and configure the transceiver. For information on how to use the Full Feature handset, see **Using the Full Feature Handset** on page 35.

Handset Sections

The Handset is divided into the following 4 inter-working sections.

- The Liquid Crystal Display (LCD) and Light Emitting Diodes (LED) section. This section gives you visual indications about the operation and status of the system.
- The Function keys section. This section enables you to interact with the software menu system of the transceiver.
- The Alpha-Numeric section. This section enables you to dial and to enter data into the transceiver.
- The volume control. A control placed on the side of the handset for easy adjustment of the volume.

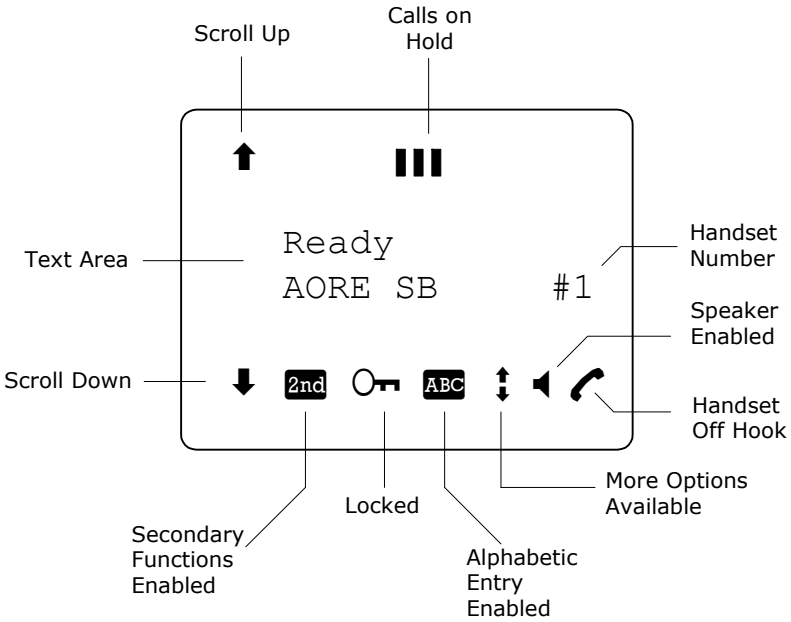
The sections are explained in detail in the following pages.

Display and LEDs

The following picture shows the top of the handset with the display and LEDs. The LCD can be adjusted for contrast and is backlit for viewing in dim light or at night.

The Display

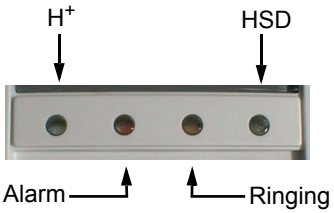
The LCD display is graphically shown below:



The display contains a set of symbols which, together with the 4 LEDs situated below the display, continuously indicate the current status.

LEDs

There are four LEDs below the LCD display.



- **H**$^+$ LED (GREEN): The H$^+$ LED indicates that the system is logged on to H$^+$ services.
- **Alarm** LED (RED): The Alarm LED illuminates when the system detects a fatal or essential fault. A fault code is also shown in the display.
- **Ringing** LED (AMBER): The Ringing LED flashes when the handset is ringing. When a connection is established the LED is turned off.
- **HSD** LED (GREEN): The HSD LED indicates that the system is logged on to HSD services.

Display Symbols

The below list shows the meaning of each of the various symbols, that may appear in the display.

Symbol	Meaning
⬆	More menu entries above.
▌▌▌	Calls on hold. Each bar represents a call on hold. In this example there are 3 calls on hold.
⬇	More menu entries below.
2nd	The 2nd key has been pressed. The 2nd function will be used for the next key pressed.
🔑	A valid pin code is required to use the terminal.
ABC	The keypad is in alpha mode. Alpha mode is used to enter letters (for example names in the phone book). **Note:** This symbol does **not** indicate capital letters. The #Join key is used to toggle the Caps lock function.
↕	The value in a menu must be selected between certain predefined values by means of the ⬆Edit and ⬇Mute keys.
🔈	The speaker. You can turn the external speaker on and off by pressing 🔈. The 🔈 symbol is displayed in the LCD when the speaker is on.
📞	The handset is off hook

Function Keys

Overview

The Function keys enable you to enter the menu system of the transceiver and change various settings.

Function Keys

The below list shows the meaning of the function keys.

Note: You access the second function of a key by pressing 2nd before pressing the key.

Key	Function
Exit	Exit key: • In the Menu system, pressing Exit brings you back one level until the menu is completely exited. • When you are asked YES or NO by the system, pressing Exit is interpreted as a NO response. • When you are entering data into the transceiver, pressing Exit cancels the entry. • Second function: Leave the menu system.

Key	Function
	Speaker key: This key turns the external speaker on and off.
	OK key: • When in the main screen display, pressing OK enters the menu system. • When in the menu system, pressing OK enters the selected menu. • When entering data, such as phone numbers or pin codes, pressing OK applies the entry. • When you are asked YES or NO by the system, pressing OK is interpreted as a YES response.
	Clear key: • The primary function is to clear the last entered digit. • Second function: Insert. The insert function is used to insert new phone book entries, etc.
	Scroll up key: • The primary function is to enable you to scroll up to menu items not shown on the 2-line display of the LCD. • Second function: Edit. The Edit function allows you to edit previously entered information, for example phone book entries.

Key	Function
	ABC key: • The primary function of this key is to toggle between normal mode and alpha numeric mode. • Second function: Delete. The Delete function allows you to delete previously entered information, for example phone book entries.
	The 2nd function of the next key pressed will be applied.
	Scroll down key: • The primary function is to enable you to scroll down to menu items not shown on the 2-line display of the LCD. • Second function: Mute. The Mute function turns the handset microphone on/off.
	• When pressed after a number, initiates a call. • When pressed during a phone call, ends the call. • When pressed without a connection and without any numbers entered, shows a list of the ten last dialled numbers. When pressed again, dials the selected number.

Second Functions

A number of keys have a 2nd function. The following table gives a total overview of all the 2nd functions.

Keys	Function
2nd 1 Menu	Enters the top level of the menu system.
2nd * Route	Transfers the call to a specified handset.
2nd 0 Hold	Places a call on hold.
2nd # Join	Joins other handsets to a call.
2nd C Ins	Inserts an entry, for example in the phone book.
2nd ↑ Edit	Edits an existing entry, for example in the phone book.
2nd ABC Del	Deletes an existing entry, for example in the phone book.
2nd ↓ Mute	Mute. Turns the handset microphone on/off.
2nd Exit	Exits the menu system from anywhere in the menus.

Alpha-Numeric Keys

Overview

The keypad can be in normal (numeric) mode or alpha mode. Normal mode is used to enter digits (phone numbers) whereas alpha mode is used to enter letters (such as names in the phone book).

Switching Alpha/Numeric Mode

The Del key is used to switch between the two modes. The ABC symbol in the display indicates that the handset is in alpha mode.

Entering Letters

In alpha mode you can use each of the numeric keys to select between subsets of the alphabet and certain special characters.

To enter a letter, press the key a number of times until the wanted character is shown in the display. For example, to insert the letter C, you press the 2 abc key 3 times in alpha mode.

Caps Lock Toggle

The # Join key is used as a Caps lock toggle when the handset is in alpha mode.

Route Key

The Route key is a special function key, which is normally used only in numeric mode.

Available Characters in Alpha Mode

Below is an overview of the relevant keys in alpha mode.

Key	Available characters or functions in alpha mode
1 Menu	- ? ! , . : ' $ ( ) + / 1
2 abc	A B C 2
3 def	D E F 3
4 ghi	G H I 4
5 jkl	J K L 5
6 mno	M N O 6
7 pqrs	P Q R S 7
8 tuv	T U V 8
9 wxyz	W X Y Z 9
0 Hold	<space>
# Join	Caps lock toggle

The Auxiliary Handset

Overview

The Auxiliary handset provides an optional interface for voice calls.

For information on how to use the Auxiliary handset, see **Using the Auxiliary Handset** on page 40.

Handset Sections

The Auxiliary handset is divided into the following 3 sections.

- The Light Emitting Diodes (LED) section. This section gives you visual indications about the operation and status of the system.
- The Function keys section. This section gives you access to a few call functions, such as transfer of calls, memory etc.
- The Alpha-Numeric section. This section enables you to dial numbers.

All 3 sections are explained in detail in the following pages.

The Auxiliary handset also provides a volume control placed on the side of the handset.

LEDs

There are two LEDs on the Auxiliary handset.

The left green LED lights constantly when the handset is off-hook.

The right green LED flashes to indicate that the handset is ringing. When a connection is established, the LED is turned off.

Function Keys

Overview

The function keys enable you to transfer calls, redial, store and recall phone numbers, and to mute the microphone.

List of Function Keys

Each function key is described in detail below.

Key	Function
STO	Store number. This key is used to store phone numbers.
MEM	Memory. This key is used to recall phone numbers from the memory.
R	Transfer call. This key is used to transfer an incoming call to another handset.
M1	Memory location 1. (Same function as MEM 1)
M2	Memory location 2. (Same function as MEM 2abc)
M3	Memory location 3. (Same function as MEM 3def)
	Redial. This key is used to redial the last dialled number.
Mute	Mute. This key is used to mute the microphone.
	Toggle hook. This key is used to toggle between on-hook and off-hook.

Numeric Keys

Overview

The numeric keys are primarily used to dial numbers or to enter numbers to be stored in memory.

List of Available Characters and Functions

Below is an overview of the relevant numeric keys.

Key	Available Characters or Functions
1	1
2 abc	2 a b c
3 def	3 d e f
4 ghi	4 g h i
5 jkl	5 j k l
6 mno	6 m n o
7 pqrs	7 p q r s
8 tuv	8 t u v
9 wxyz	9 w x y z
*	Special function
0	0
#	This key is used to indicate the end of a phone number/activate a call.

Other Handset Types

For information on other types of handset, see the user manual for the handset.

Sigma^7 or 2.4 GHz Cordless Phone

For information on how to make a call using the Sigma^7 or 2.4 GHz Cordless phone, refer to the sections **Using the Sigma^7 Handset** on page 45 and **Using the 2.4 GHz Cordless Handset** on page 46.

Getting started

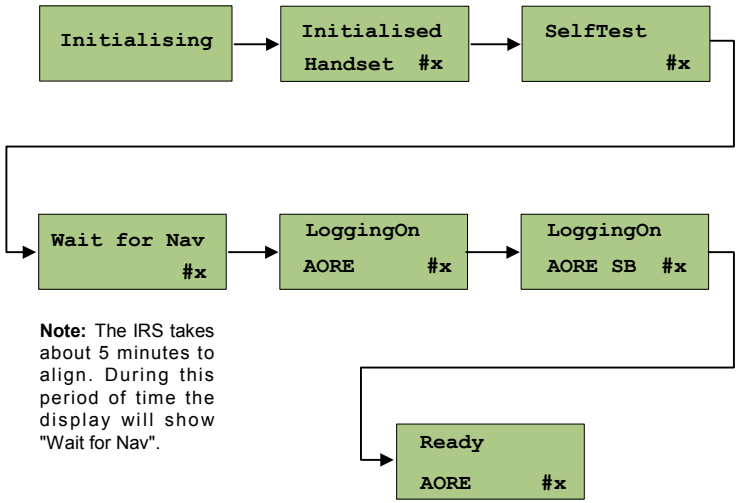
Initializing the System

To Power on the System

The Aero-HSD^{+} system is powered by the aircraft power system, and is powered up along with the aircraft.

The display and all LED's on the handset will light up for a few seconds.

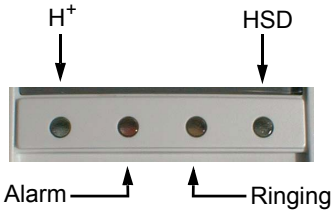
Below is an example of the normal read-out of the handset display, while the SDU is booting.



Note: The IRS takes about 5 minutes to align. During this period of time the display will show "Wait for Nav".

When the display shows “Ready”, you can use the handset. Check the H^{+} LED and the HSD LED to see which services are logged on.

The H^+ LED indicates that H^+ services are logged on, and the HSD LED indicates that HSD services are logged on.



Note: If the system does not log on automatically, the reason may be that the Logon policy is set to User Demand. In this case you have to log on using the Logon menu. For further information, see **Logon Menu** on page 66.

To Power off the System

The system is automatically powered off along with the aircraft.

Some aircrafts are equipped with a “SatCom on/off” button, which can be used to power off the system while the aircraft is powered.

If the aircraft does not provide a “SatCom on/off” button, you can use the circuit breaker to power off the system.

Pin Codes

Overview

For some of the functionality of the terminals, access is restricted by a pin code. Three different kinds of user pin codes are used in the system:

- one pin code for the Normal user,
- one for the Super User and
- one for the Service Provider.

Common for all pin code types is that the length must be between 4 and 8 digits and that they contain digits between 0 and 9.

Normal User Pin Code

The normal everyday user can make and receive calls, access the phone book, choose an ocean region and a default LES and GES, and read the alarm log and status.

A Normal User is typically the day-to-day user of the system. All additional setup has to be carried out by a Super User or a Service Provider.

Super User Pin Code

The Super User has the same rights as the Normal User. In addition, the Super User can access certain super user functions. A Super User will typically be a person responsible for setting up and maintaining the system.

Service Provider Pin Code

The Service Provider has access to all functionality accessible through the handset.

Only Thrane & Thrane and/or the supplier of the equipment normally know this pin code.

Operation

Using the Full Feature Handset

Any call made from the system uses one of the service types H^+ voice, ISDN or 3.1 kHz audio.

Before making a call, make sure the display shows “Ready” and that the service LEDs (H^+ and/or HSD) are lit.

Making an H^+ Call from the Handset

Do as follows:

1. Type in the phone number with the prefix 00.

   Example: To dial the number of Thrane & Thrane inc. (+1 757 463 9557), press the number:

   0 0 for Voice,

   1 Menu for country code,

   then 7 pqrs 5 jkl 7 pqrs 4 ghi 6 mno 3 def 9 wxyz 5 jkl 5 jkl 7 pqrs

2. Press ☎, OK or # Join to activate the call.
   The display on the terminal handset shows how the call proceeds.

3. Hang up by pressing ☎ or placing the handset in the cradle. When the call is terminated, the display shows the duration of the call.

   Example:

   ```
   Connected:
   00:01:59
   ```

The Phone Book can also be used to initiate a call, either by selecting an entry in the phone book or by using the Quick Dial function.

Answering a Call

Answering a call to the Full Feature handset can be done in two ways:

- If the handset is in the cradle, simply take the handset from the cradle to answer the call.
- If the handset is out of the cradle, press [↩] to answer the call.

Making a Call Using the Phone Book

The phone book can be used to initiate a call.

For information on how to insert or edit entries in the phone book, see **Phone Book** on page 56.

To make a call using the phone book, do as follows:

1. Press [↑ Edit] or [↓ Mute] to access the phone book from the main display, or enter the menu system and select PhoneBook.
2. Find the entry you need, either by scrolling the list with [↑ Edit] or [↓ Mute], or by pressing the key holding the first letter of the entry.

   Example: To find an entry with the name Jones, press [5 jkl] once. To find an entry with the name Larsen, press [5 jkl] three times.
3. Press [↩], [OK] or [# Join] to dial the selected number.

Using the Quick Dial Function

To use the Quick Dial function, press one of the 1 Menu → 9 wxyz keys and hold it down for 1 sec. Each key is a shortcut to a user-defined entry in the phone book. For further information, see the section **System Setup, QuickDial** on page 79.

Redialling a Number

To call the last used number, press the call key to show a list of the last ten numbers dialled from the handset.

Note: The list only shows the first 12 digits of each number.

Scroll through the list and press the call key, OK or # Join to establish a call to the selected number.

Making Internal Calls

It is possible to make internal calls between any of the POTS phones and 4-wire handset interfaces.

To Initiate an Internal Call

Press the interface code in the table below followed by #Join.

Note: The Interface Code is shown in the right bottom corner of the display of the Full Feature handsets.

Interface	Interface Code
4-Wire Handset #1	1
4-Wire Handset #2	2
4-Wire Handset #3	3
4-Wire Handset #4	4
POTS phone #1	5
POTS phone #2	6

Example: To call 4-Wire Handset number 3, press 3def #Join.

To Make an Internal Call to all Handsets

Press *Route *Route 0Hold #Join

Transferring a Call

It is possible to receive a call on a handset and transfer the call to another handset.

Use the following procedure to make a Call transfer:

1. When an incoming call is received, answer the call as usual with [↩] or simply lift the handset from the cradle.
2. Place the call on hold with [2nd] [0 H/O/D].
3. Dial the Interface Code of the desired handset, e.g. [2 abc] for Handset #2.
4. Initiate handset to handset call with [# JOIN].
   You have now established an active call from handset to handset, and you can give a short message.
5. Route the incoming call to the new handset with [2nd] [* ROUTE], or by just placing the handset in the cradle.

Making a Conference Call

It is possible to make conference calls between more handsets.

Note: Max. 6 lines can be connected, including handsets on the aircraft and lines to the ground.

Use the following procedure to make a Conference Call.

1. When a call is already established, place the call on hold with [2nd] [0 H/O/D].
2. Dial the desired handset e.g. [2 abc] for handset #2.
3. Initiate handset to handset call with [# JOIN].
4. Join all three handsets with [2nd] [# JOIN].

To join more handsets, repeat step 1 to 4.

Using the Auxiliary Handset

Making a Call

Making a call from a normal 2-wire POTS phone connected to one of the two analogue POTS phone interfaces is done in the same way as a call from a standard telephone, but always with the prefix 00 and # after the number to signal to the terminal, that the number is complete.

Example: To call Thrane & Thrane inc. in USA (country code 1) first establish a connection by pressing or taking the handset off the cradle. Then press the following keys on the phone:

0 0 1 7pqrs 5jkl 7pqrs 4ghi 6mno 3def 9wxyz 5jkl 5jkl 7pqrs #

Internal calls are made the same way as with the Full Feature handset, see **Making Internal Calls** on page 38.

Answering a Call

Answering a call to the Auxiliary handset can be done in two ways:

- If the handset is in the cradle, simply take the handset from the cradle to answer the call.
- If the handset is out of the cradle, press to answer the call.

Storing a Phone Number

The Auxiliary handset can store up to 10 phone numbers, in memory location 0 to 9. The M1, M2 and M3 keys can be used for accessing memory location 1, 2 and 3, whereas the other locations are accessed using the MEM key followed by the number of the location.

To Store a Number Using M1, M2 and M3

Do as follows:

1. Press the off-hook key or take the handset off the cradle.
2. Press STO.
3. Enter the phone number you want to store, including country code.
4. Press STO.
5. Press M1, M2 or M3 depending on the memory location you want to save the number in.

   The number is now available in the memory location you selected.

   Example: To save the phone number of Thrane & Thrane inc. in memory location 2, take the handset off the cradle and press the following keys:

   STO
   0 0 1 7pqrs 5jkl 7pqrs 4ghi 6mno 3def 9wxyz 5jkl 5jkl 7pqrs
   STO
   M2

To Store a Number Using the Number Keys

Do as follows:

1. Press [phone] or take the handset off the cradle.
2. Press [STO].
3. Enter the phone number you want to store, including country code.
4. Press [STO].
5. Press one of the keys 0 to 9, depending on the memory location you want to save the number in.

   The number is now available in the memory location you selected.

Example: To save the phone number of Thrane & Thrane inc. in memory location 8, take the handset off the cradle and press the following keys:

Recalling a Phone Number from Memory

To Recall a Number Using M1, M2 and M3

To recall a phone number from memory location 1, 2 or 3 using the M1, M2 and M3 keys, do as follows:

1. Press the talk key or take the handset off the cradle.
2. Press M1, M2 or M3, depending on which memory location you want.

   The number saved in the memory location is dialled.

Example: To call the number saved in memory location 3, first establish a connection by pressing the talk key or taking the handset off the cradle. Then press M3. The number saved in memory location 3 is dialled.

To Recall a Number Using MEM and the Number Keys

To recall a phone number from memory using the MEM key, do as follows:

1. Press the talk key or take the handset off the cradle.
2. Press MEM followed by the number of the memory location you want.

   The number saved in the memory location is dialled.

Example: To call the number saved in memory location 8, first establish a connection by pressing the talk key or taking the handset off the cradle. Then press MEM 8tuv. The number saved in memory location 8 is dialled.

Note: Pressing M1 has the same effect as pressing MEM 1.

Transferring a Call

It is possible to receive a call on a handset and transfer the call to another handset.

Use the following procedure to make a Call transfer:

1. When an incoming call is received, answer the call as usual with [↩] or simply lift the handset from the cradle.
2. Place the call on hold with [R].
3. Dial the Interface Code of the desired handset, e.g. [2 abc] for Handset #2.
4. Initiate handset to handset call with [#].
   You have now established an active call from handset to handset, and you can give a short message.
5. Route the incoming call to the new handset by pressing [↩], or placing the handset in the cradle.

Redialling a Number

To call the last dialled number, first establish a connection by pressing [↩] or taking the handset off the cradle. Then press [◎] followed by [#].

Muting the Microphone

To mute the microphone of the handset, press [Mute]. To return to normal microphone function, press [Mute] again.

Using the Sigma^7 Handset

Making a Call

To make a call using the Sigma^7 handset, do as follows:

1. Press the **On** key.
2. Type in the phone number with the prefix 00.
3. Press #.

Example: To dial the number of Thrane & Thrane inc. (+1 757 463 9557), press the **On** key followed by the number:
"00" for Voice, "1" for country code,
then "757 463 9557#".

- **To hang up**, press the **Off** key or place the handset in the cradle.
- **To answer a call**, take the handset out of the cradle and press the **On** key.

For further information on the functions of the Sigma^7 handset, refer to:

"Sigma^7 Telephone Handset Manual", PN# 500114.

Using the 2.4 GHz Cordless Handset

Making a Call

To make a call using the 2.4 GHz Cordless handset, do as follows:

1. Type in the phone number with the prefix 00.
2. Press #.
3. Press the **TALK** key.

Example: To dial the number of Thrane & Thrane inc. (+1 757 463 9557), press the number: "00" for Voice, "1" for country code, then "757 463 9557#", followed by the **TALK** key.

- **To hang up**, press the **END** key or place the handset in the cradle.
- **To answer a call**, take the handset out of the cradle and press the **TALK** key.

For further information on the functions of the 2.4 GHz Cordless handset, refer to:

"2.4 GHz Cordless, Installation Manual", PN# 500484.

Other Call Functions

Call Routing

The Aero-HSD$^+$ system currently supports two prefixes that can be used to route outgoing calls to a specific service type.

- To route a H$^+$ call to HSD voice, use the prefix **20** in stead of 00.
- To route a H$^+$ fax to HSD fax, use the prefix **21** in stead of 01.

Making a Call from an ISDN Phone

Making a call from a phone connected to the ISDN interface is similar to making a call from the POTS handset, that is, you have to press [#] to indicate the end of the number.

Example: To call Thrane & Thrane inc. in USA (country code 1) first establish a connection by pressing [☎] or taking the handset off the cradle.
Then press the following keys on the phone:

[0] [0] [1] [7] [5] [7] [4] [6] [3] [9] [5] [5] [7] [#]

Sending a Fax from the Terminal (Air to Ground)

Important! Before sending or receiving fax messages, make sure both fax units are in "Overseas" mode.

Note: You can route a H^+ fax to HSD by using the prefix **21** in stead of **01**.

To send a fax from the terminal, use the prefix 01 for fax, followed by the called fax number including the country code, followed by #.

Example: To call Thrane & Thrane inc. in USA (country code 1) press the following keys on the fax:

0 1 1 7 5 7 4 6 3 9 5 8 1 #

Sending a Fax to the Terminal (Ground to Air)

Important! Before sending or receiving fax messages, make sure both fax units are in "Overseas" mode.

To send a fax to the terminal, use the procedure in **Calling the Terminal (Ground to Air)** on page 49.

Example: To send a fax to an Inmarsat Mobile Number (IMN) on a terminal situated in the ocean region IOR, dial **+873** followed by the IMN number, where the "+" stands for the IDD (International Direct Dialing) Prefix – which is 011 when calling from USA, but 00 from many other countries.

Calling the Terminal (Ground to Air)

Direct Phone Number

A direct phone number service allocates a ground phone number to call a terminal in the aircraft directly.

With this service, it is not necessary to know in which ocean region the aircraft is located to make a call on Aero-H^+.

Note: Only some of the service providers support this service. Contact your service provider for information.

Aero H^+ Numbering Rules

International Prefix

The international prefix used to call from the ground is +87x

"+" stands for the IDD (International Direct Dialing) Prefix – which is 011 when calling from USA, but 00 from many other countries.

"x" represents the satellite to which the system is logged on, and it can be one of the following:

- 0 for any satellite (Not supported on Aero-H^+, only on Swift64)
- 1 for AORE (Atlantic Ocean Region East)
- 2 for POR (Pacific Ocean Region)
- 3 for IOR (Indian Ocean Region)
- 4 for AORW (Atlantic Ocean Region West)

Note: In some countries such as Russia, the access to +87x is restricted and requires an account to be set with the local service provider.

Ground to Air Broadcast Call Using the AES ID

One way to make a ground to air call to the Aero-HSD$^+$ system is to use the AES ID for a broadcast call.

From a ground phone dial +87x 5 <AESID>.

The AESID is the ICAO address in octal numbers. The "5" before the AESID indicates the Aero H$^+$ service.

Example: If:
you are making a call from USA and
the ICAO address is 01234567 and
the terminal is logged on to a GES on AORE, dial:
011 871 5 01234567

Ground to Air Call Using the DDI Numbers

It is possible to dial a specific terminal in the aircraft, using a specific service (voice, fax or data).

From a ground phone dial: **+87x 5 <DDI> <Terminal Number>**

DDI (Direct Dial-In)
The DDI number identifies both the terminal on the network and the service used (Voice, Fax or Data).

Note: In the Service Activation Registration Form (SARF), the allocation of DDI number is optional. Make sure that they are requested when submitting the SARF.

Example: The following is an example of a Ground to air call using DDI numbers:
If the DDI numbers allocated are:
-111112 for voice
-111113 for fax
-111114 for data
-and the aircraft is logged on to a GES in IOR
-and you are making a call from USA,
the phone number to dial on the ground to call handset #2 is:
011 873 5 111112 02 (IDD for USA - IOR international prefix - 5 for H^+ service - DDI Voice - Terminal number 2)

Under the same circumstances, the phone number to dial on the ground to send a fax connected to POTS#1 is:
011 873 5 111113 05 (IDD for USA - IOR international prefix - 5 for H^+ service - DDI Fax - Terminal number 5)

Terminal number
Each terminal manufacturer identifies the terminals by a number from 0 to 99.

Example: Below is an example of Thrane & Thrane Aero-HSD^{+} terminal numbers:

- 00: The terminal will behave as if it has received a call using the AES ID (a broadcast call to all handsets)
- 01: Handset #1
- 02: Handset #2
- 03: Handset #3
- 04: Handset #4
- 05: POTS #1
- 06: POTS #2

Swift64 Numbering Rules

IMN (Inmarsat Mobile Number)

To perform a ground to air call to a terminal using swift64, the caller can use the IMN numbers as follows:

Dial **+870 <IMN number>**

An IMN is the network identification for a specific service on a specified terminal.

The service can be ISDN DATA64, ISDN DATA56, SPEECH or AUDIO3.1.

Example: If the IMN number is 600000000 and you are making the call from USA, dial **011 870 60000000.**

Menu Navigation

This section describes how to access the menu system using the keys and display of the Full Feature handset.

The complete Menu Tree is found in the appendix **Menu Tree** on page 129.

All the menus are described in **The Handset Menus** on page 56.

Basic Menu Functions

- **To access the menus**, press OK or 2nd 1Menu.
  When you are in the menu system you may also press 2nd 1Menu to reach the top level of the menus.
- **To scroll through the menus**, use the ↑Edit and ↓Mute keys.
- **To enter the selected menu**, press OK.
- **To go back to the previous level** in the menu system, press Exit.
- **To exit the menu system completely** from anywhere in the menu system, press 2nd Exit.
- **To reach a specific item** in the menu system, press 2nd 1Menu and a number corresponding to the entry level.

  Example: Press 2nd 1Menu 5jkl to access the 'Logon' menu (which is the 5th entry in the main menu).

Restricted Access

There are 4 different levels of access to the menus:

- Users without a pin code.

  If the handset is locked with the Normal User pin code, the only function available is answering the phone. If the Normal User pin code is disabled, all Normal User functions are available.

- Normal User

  The Normal User has access to normal everyday functions and to make changes to these.

- Super User

  The Super User has the same rights as the Normal User, but can additionally access a few extra settings that are not available to the Normal User.

- Service Provider.

  The functions restricted by the Service Provider pin code can only be accessed by the supplier or Thrane & Thrane.

You will be prompted for a pin code when entering a function that is restricted by pin codes.

The Handset Menus

This section describes each of the menus in the system. For an overview of all the menus, see **Menu Tree** on page 129.

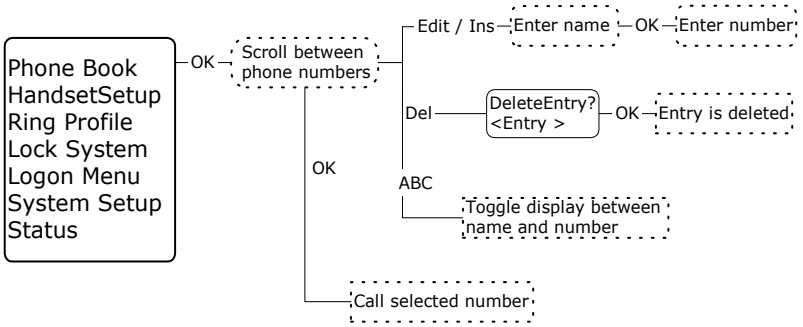
Phone Book

Overview

The **Phone Book** contains 99 entries, which can be used for making phone calls. You can edit, delete or insert entries.

To access the Phone Book menu, you can:

- press ↑Edit or ↓Mute from the main display, or
- press OK to enter the main menu, scroll to **Phone Book** and press OK.



Each entry holds the following information:

- Name
- Telephone number

The telephone number must include call prefix for automatic calls and international access code. The telephone number can hold up to 24 digits.

The name can hold up to 24 characters.

The list of entries in the phone book is sorted alphabetically.

An entry in the phone book is displayed as a name if in alpha mode or as a telephone number if in normal mode. Note that only the first 12 digits are displayed.

To Make a Call Using the Phone Book

Do as Follows:

1. Within the phone book, use ↑Edit ↓Mute to select an entry.
2. Press OK, ☎ or #Join to dial.

Hint: You may also go directly to a specific entry by pressing the key holding the first letter of the entry.

Example: To find an entry with the name Jones, press 5jkl once. To find an entry with the name Larsen, press 5jkl three times.

To Insert a New Entry in the Phone Book

Do as follows:

1. From within the phone book, press 2nd C Ins.
2. Enter the name of the new entry followed by OK.
3. Enter the phone number including country code and press OK.

Example: In this example the number to Thrane & Thrane inc., 0017574639557, is inserted.

2nd C Ins
THRANE OK
0 0 1 7 pqrs 5 jkl 7 pqrs 4 ghi 6 mno 3 def 9 wxyz 5 jkl 5 jkl 7 pqrs OK

To Delete an Entry in the Phone Book

1. Select the entry in the phone book.
2. Press 2nd Del.

To Edit an Entry in the Phone Book

Do as follows:

1. Select the entry in the phone book.
2. Press 2nd Edit and type in the new name followed by OK. Then type in the new number followed by OK.

HandsetSetup

Overview

The **HandsetSetup** menu is used for adjusting the light and sound settings of the handset.

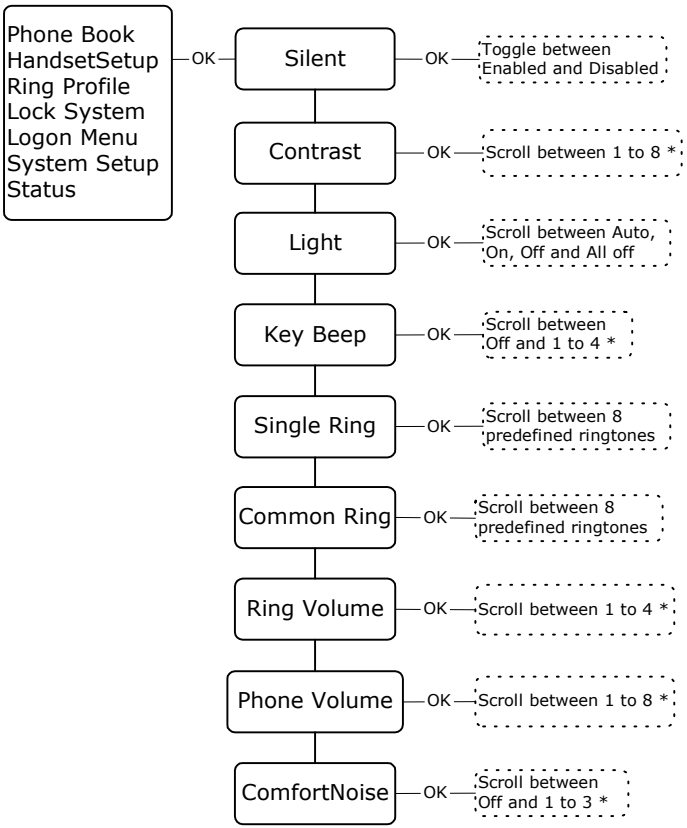
The **HandsetSetup** menu has the following submenus:

- Silent
- Contrast
- Light
- Key Beep
- Single Ring
- Common Ring
- Ring Volume
- Phone Volume
- ComfortNoise

Each of the submenus is described in the following pages.

The HandsetSetup Menu

To access the HandsetSetup menu, enter the main menu, scroll down to **HandsetSetup** and press OK.



To Enable/Disable the Silent Function

Select **Silent** to view or change the Silent setting of the handset.

Use [Edit] and [Mute] to toggle between Enabled and Disabled. **Enabled** turns off the ring tone of the handset.

To Adjust the LCD Contrast

Select **Contrast** to view or change the contrast setting of the handset display.

Use [Edit] and [Mute] to adjust the contrast and [OK] to confirm.

The value can be between * and ********.

To Change the Light Settings

Select **Light** to view or change the light settings of the handsets.

Use [Edit] and [Mute] to scroll between the settings and [OK] to confirm.

The value can be Auto | On | Off | All Off.

The following table shows the function of the light settings.

Setting	Display Backlight	LEDs
Auto	Activated on event	Normal function
On	Always on	Normal function
Off	Always off	Normal function
All Off	Always off	Always off

To Adjust the Key Beep Volume

Key beep is a “beep” sound when a key is pressed.

Select **Key Beep** to view or change the Key Beep setting of the handsets.

Use [Edit] and [Mute] to adjust the volume of the Key Beep and [OK] to confirm.

The value can be Off or between * and ****.

To Select the Ring Tone for a Direct Call

Single Ring is the ring tone for a direct call (opposite to a broadcast call).

Select **Single Ring** to view or change the direct ring tone setting of the current handset.

Use [Edit] and [Mute] to scroll through the ring tones and [OK] to select.

You can choose between 8 predefined ring tones.

To Select the Ring Tone for Broadcast Calls

Common Ring is the ring tone for broadcast calls.

Select **Common Ring** to view or change the broadcast ring tone setting of the current handset.

Use [Edit] and [Mute] to scroll through the ring tones and [OK] to select.

You can choose between 8 predefined ring tones.

To Adjust the Ring Volume

Select **Ring Volume** to view or change the Ring Volume setting of the handset.

Use ↑Edit and ↓Mute to adjust the Ring Volume and OK to confirm. The value can be between * and ****.

To Adjust the Phone Volume

Select **Phone Volume** to view or change the initial volume setting for the handset. To adjust the volume during a call, use the volume control on the side of the handset.

Use ↑Edit and ↓Mute to adjust the Phone Volume and OK to confirm.

The value can be between * and ********.

To Adjust the Comfort Noise

Comfort Noise is a background noise to verify that the line is connected.

Select **ComfortNoise** to view or change the Comfort Noise setting of the handset.

Use ↑Edit and ↓Mute to adjust the Comfort Noise and OK to confirm.

The value can be Off or between * and ***.

Ring Profile

Overview

The **Ring Profile** menu allows you to select from a list of predefined ring profiles. A ring profile applies to the entire system and determines the ring settings of each unit in the system.

To Select a Ring Profile

Do as follows:

1. To access the Ring Profile menu, enter the main menu, scroll down to **Ring Profile** and press OK.
2. Use ↑Edit and ↓Mute to scroll through the ring profiles and OK to select.

Note: If the "Chime/Lamps Inhibit" function is used in the installation, the "TakeOfLandng" profile is automatically activated during takeoff and landing.

For information on how to change the ring profiles, see the section **System Setup, RingProfiles** on page 76.

Lock System

Overview

The **Lock System** menu can be used to lock the phone. When the phone is locked, you can still answer an incoming call, but you cannot access any of the functions until you press OK and enter the Normal User pin code.

To Lock the Handset

Do as follows:

- To lock the phone, enter the main menu, scroll down to **Lock System**, press OK and enter the Normal User Pin code.
- To unlock the phone, press OK and enter the Normal User Pin code.

Logon Menu

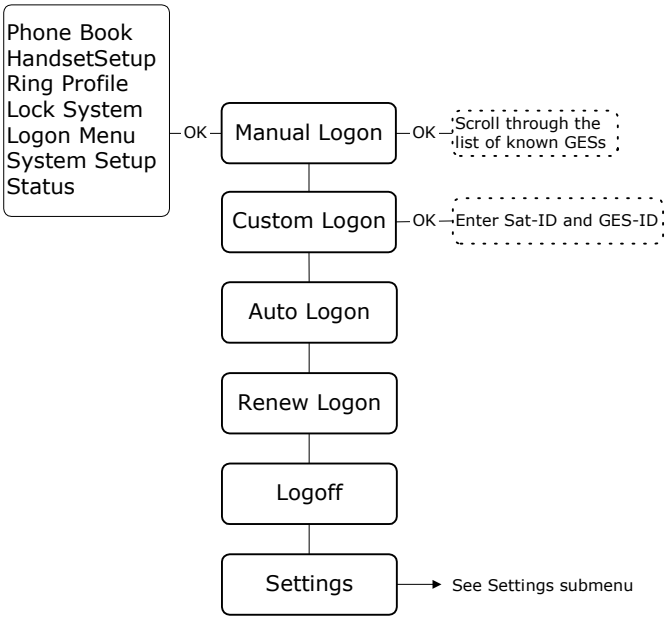
Overview

The **Logon Menu** is used to log on or off the system, or to change the Logon settings.

The **Logon Menu** has the following sub menus:

- Manual Logon
- Custom Logon
- Auto Logon
- Renew Logon
- Logoff
- Settings (see **Logon Menu, Settings** on page 68)

To access the Logon Menu, enter the main menu, scroll down to **Logon Menu** and press OK.



To Log on Manually

Note: Before logging on manually, make sure the Logon Policy is set to User Demand. To change the Logon Policy, select Settings from the Logon menu and then Logon Policy. You can toggle between User Demand and Automatic and select with OK.

Select **Manual Logon** to select the GES manually from the list of known GESs.
Use ↑Edit and ↓Mute to scroll through the list and OK to select.

To Make a Custom Logon

Note: Before making a Custom Logon, make sure the Logon Policy is set to User Demand. To change the Logon Policy, select Settings from the Logon menu and then Logon Policy. You can toggle between User Demand and Automatic and select with OK.

You can use this menu if you need to log on to a GES which is not in the list of known GESs.

1. Select **Custom Logon** to manually enter the Sat-ID and GES-ID you want to use for logging on.

   For a list of supported GESs, see **List of Available GESs** on page 131.

2. Enter the Sat-ID and GES-ID and press OK to confirm.

To Select Automatic Logon

Select **Auto Logon** to log on automatically to the most appropriate GES.

To Renew the Logon

Select **Renew Logon** to log off and then on again.

To Log off

Select **Logoff** to log off the system.
To log on again you have to use the logon menu.

Logon Menu, Settings

Overview

From the Settings submenu you can change the logon policy and view or change the lists of preferred GESs and LESs.

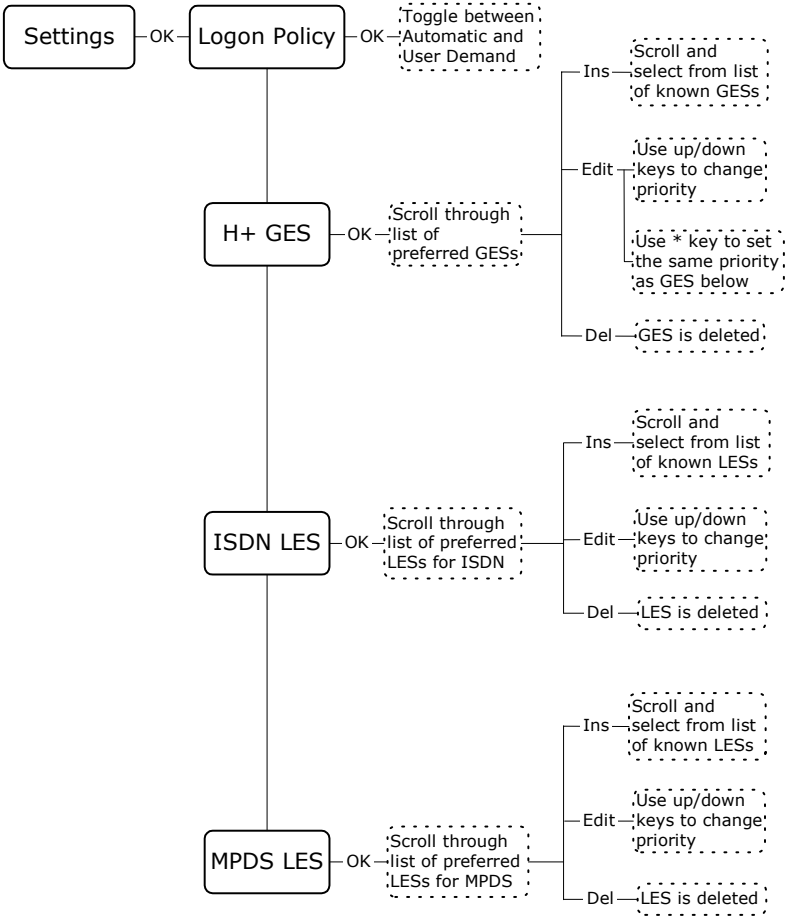
The **Settings** menu has the following sub menus:

- Logon Policy
- H^+ GES
- ISDN LES
- MPDS LES

Each of the submenus is described in the following pages.

The Settings Submenu

To access the Settings submenu, enter the **Logon Menu**, scroll down to **Settings** and press OK.



To Select the Logon Policy

Select **Logon Policy** to display or change the logon policy.

Use [↑ Edit] and [↓ Mute] to toggle between Automatic and User Demand.

- **Automatic**: The system automatically logs on when it is powered.
- **User Demand**: When the system is powered, you have to enter the Logon menu to log on to the system.

To Modify the List of Preferred GESs

Select **H+ GES** to view or change the list of preferred GESs for H^+ transmission.

The H^+ GES list is a list of the preferred GES operators to use as gateway to the terrestrial network.

Note: If the GES list is empty, the system will automatically select the most suited satellite and a random GES.

Do as follows:

- To **add a GES** to the list, press [2nd] [C Ins], scroll through the list of known GESs and use [OK] to select the GES you want to add.
- To **delete a GES** from the list, scroll to the GES you want to delete and press [2nd] [8 Del].
- To **change the priority** of a GES, scroll to the GES you want to change and press [2nd] [↑ Edit]. Use [↑ Edit] or [↓ Mute] to move the GES to the right priority and press [OK].

  Note: Priority no. 1 is the highest priority!
- **To assign the same priority** to two GESs, scroll to the GES you want to change (GES 1)and press [2nd] [↑ Edit].

  Using [↑ Edit] or [↓ Mute], move GES 1 next to the GES with the priority you want (GES 2), so that they are both visible in the display.

  Then press [Route].

  The two GESs should now both have the priority of GES 2.

To Modify the List of Preferred ISDN LESs

Select **ISDN LES** to view or change the list of preferred LESs for ISDN transmission.

The ISDN LES list is a list of the LES operators that are preferred as gateway for ISDN traffic to/from the terrestrial network.

Note: The list must include one LES as a minimum. One LES covers all ocean regions.

- To **add a LES** to the list, press 2nd C Ins, scroll through the list of known LESs and use OK to select the LES you want to add.
- To **delete a LES** from the list, scroll to the LES you want to delete and press 2nd Del.
- To **change the priority** of a LES, scroll to the LES you want to change and press 2nd Edit.
  Use Edit or Mute to move the LES to the right priority and press OK.

  Note: Priority no. 1 is the highest priority!

To Modify the List of Preferred MPDS LESs

Select **MPDS LES** to view or change the list of preferred LESs for MPDS transmission.

The MPDS LES list is a list of the LES operators that are preferred as gateway for MPDS traffic to/from the terrestrial network.

Note: The list must include one LES as a minimum. One LES covers all ocean regions.

- To **add a LES** to the list, press 2nd C Ins, scroll through the list of known LESs and use OK to select the LES you want to add.
- To **delete a LES** from the list, scroll to the LES you want to delete and press 2nd Del.
- To **change the priority** of a LES, scroll to the LES you want to change and press 2nd ↑ Edit. Then use ↑ Edit or ↓ Mute to move the LES to the right priority and press OK.

System Setup

Overview

The **System Setup** menu is used for viewing and changing system parameters such as ring profiles, pin codes etc.

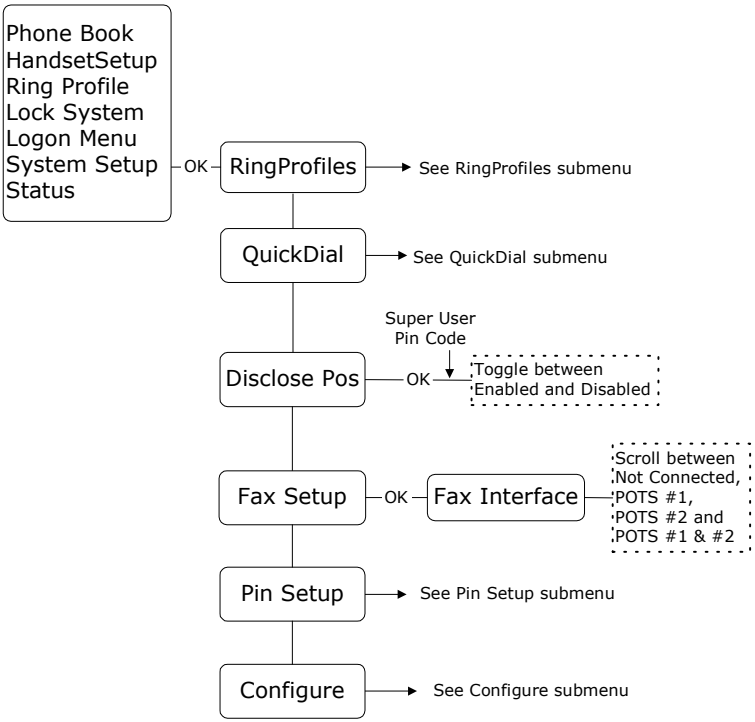
The **System Setup** menu has the following submenus:

- Ring Profiles (see **System Setup, RingProfiles** on page 76)
- QuickDial (see **System Setup, QuickDial** on page 79)
- Disclose Pos
- Fax Setup
- Pin Setup (see **System Setup, Pin Setup** on page 80)
- Configure (see **System Setup, Configure** on page 81)

Each of the submenus is described in the following pages.

The System Setup Menu

To access the System Setup menu, enter the main menu, scroll down to **System Setup** and press OK.



To Enable/Disable Disclosure of the Aircraft Position

Select **Disclose Pos** to view or change the Disclose Position status.

Note: A Super User pin code is required to change the Disclose Position status.

Use ↑Edit and ↓Mute to toggle between Enabled and Disabled.

- If you select **Enabled**, the position of the aircraft will be disclosed to the earth station for use in the Inmarsat network.
- If you select **Disabled**, only the ID of the current spot beam is disclosed.

To Turn off the Broadcast Ring Tone for an Interface

Select **Fax setup** to determine which interface should not ring on a broadcast call.

Use ↑Edit and ↓Mute to scroll through the interface options and select with OK.

You may select:

- POTS #1
- POTS #2
- POTS #1 & #2, or
- Not Connected

System Setup, RingProfiles

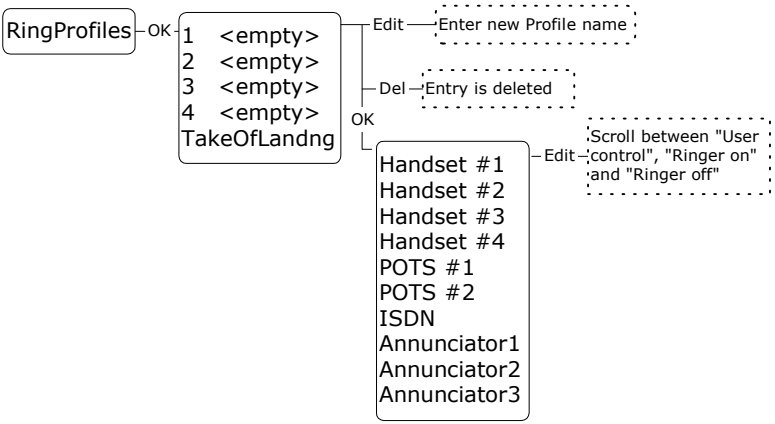
Overview

The **RingProfiles** submenu is used to view or change the Ring Profiles of the system. A ring profile applies to the entire system and determines the ring settings of each unit in the system.

You can have up to 5 ring profiles. The name of one of the profiles, "TakeOfLandng", is predefined and cannot be changed.

Note: If the "Chime/Lamps Inhibit" function is used in the installation, the "TakeOfLandng" profile is automatically activated during takeoff and landing.

To access the RingProfiles submenu, enter the **System Setup** menu, scroll down to **RingProfiles** and press OK.



To Change the Name of a Profile

Do as follows:

1. Scroll to the profile.
2. Press 2nd Edit.
3. Type in the new name and press OK.

To Change the Contents of a Profile

Do as follows:

1. Select the profile using OK.
2. Scroll to the device you want to change the settings for, and select it with OK.
3. Use Edit and Mute to toggle between User Control, Ringer On and Ringer Off.

   Note: "User Control" is only applicable to Handset #1 through #4. This means you can configure each of the handsets #1 through #4 separately. For the remaining devices, "User Control" has the same function as "Ringer On".

To Delete a Profile

Do as follows:

1. Scroll to the profile you want to delete.
2. Press 2nd Del.

Explanation of the Annunciators

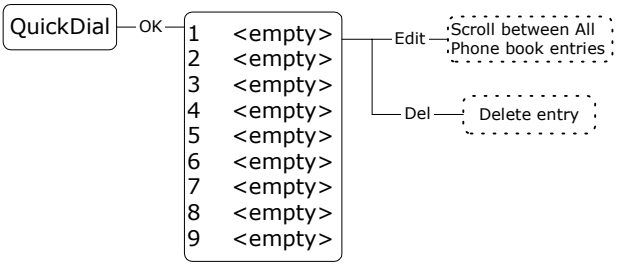
- **Annunciator1** (Call Annunciator): This Annunciator is used for signalling incoming voice calls. The Annunciator is “flashing” like the Connection LED on a Full Feature handset and is turned of when the call is answered or terminated by initiator.
- **Annunciator2** (Fax Annunciator): This Annunciator is used for signalling incoming faxes. The Annunciator is “steady ON” until a receipt for the fax has been given in the handset.
- **Annunciator3** (Service Annunciator): This Annunciator is used for indicating service availability. The Annunciator is “steady ON” when H^{+} service is available.

System Setup, QuickDial

Overview

The **QuickDial** submenu is a list of 1-digit numbers for quick dialling of up to 9 favorite phone numbers.

To access the QuickDial submenu, enter the **System Setup** menu, scroll down to **QuickDial** and press OK.



To Delete a Quick Dial Entry

Do as follows:

1. Scroll to the quick dial number you want to delete.
2. Press 2nd Del.

To Edit a Quick Dial Entry

Do as follows:

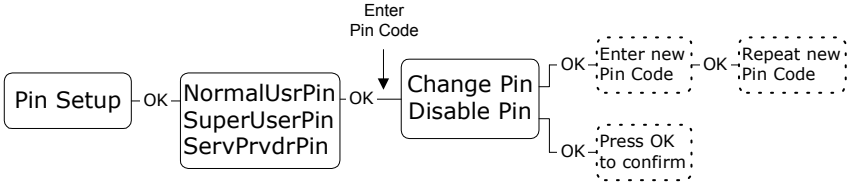
1. Scroll to the quick dial number you want to change and press 2nd Edit.
2. Scroll through the phone book to the phone number you want to use with the selected quick dial number.
3. Press OK to select the phone number.

System Setup, Pin Setup

Overview

The **Pin Setup** submenu is used for disabling or changing Pin codes.

To access the Pin Setup submenu, enter the **System Setup** menu, scroll down to **Pin Setup** and press OK.



To Access the Pin Codes

To access the pin codes you want to change or disable, do as follows:

1. Scroll to the pin code type you want to change or disable.
2. Enter the current pin code for the selected type.

   Note: The Super User pin code can also be used where Normal User pin code is required.
3. Toggle between Change Pin and Disable Pin and use OK to select the function.
   - **Change Pin:** Choosing **Change Pin** you will be prompted for a new Pin code. Enter a new Pin code of 4 to 8 digits and use OK to accept the code. When you are prompted to re-enter the Pin code, enter the code again and accept with OK.
   - **Disable Pin:** Select **Disable Pin** to disable the Pin code you entered. Press OK to confirm the deletion.
     When you disable a pin code, the functions that were previously restricted by the selected pin code will now be freely available.

System Setup, Configure

Overview

The **Configure** submenu is used for configuring the handset type and the lists of known GESs, LESs and satellites.

For complete configuration of the system, use the HSD^{+} Configuration Program.

Note: A Service Provider pin code is required to access the settings in the Configure menu.

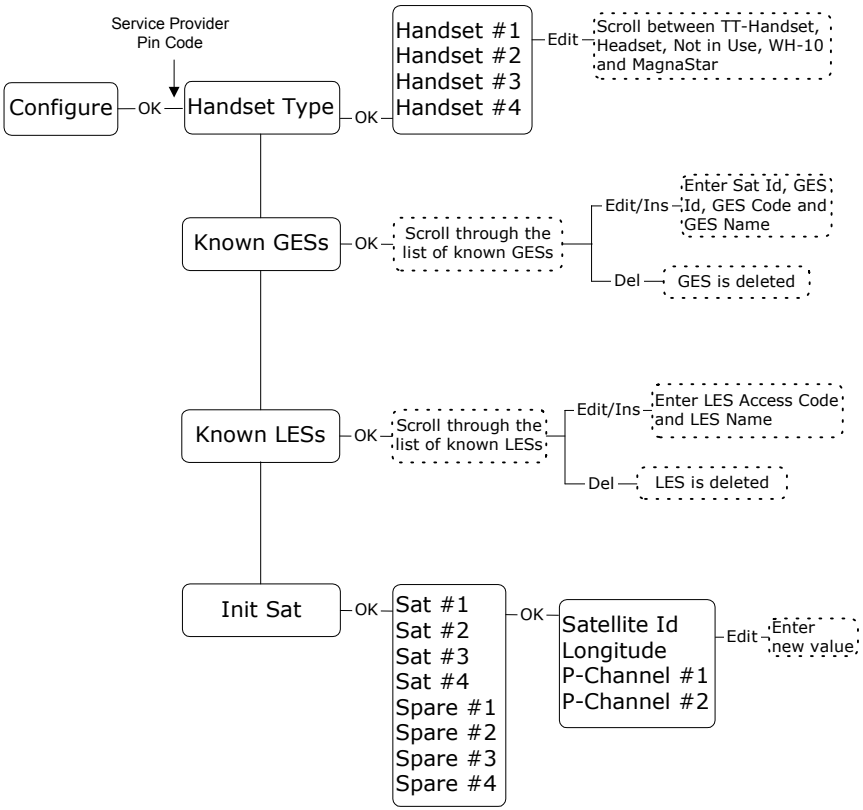
The Configure menu has the following submenus:

- Handset Type
- Known GESs
- Known LESs
- Init Sat

Each of the submenus is described in the following pages.

The Configure Submenu

To access the Configure submenu, enter the **System Setup** menu, scroll down to **Configure** and press OK.



To Select the Handset Type

Select **Handset Type** to view or change the type of the handsets.

Use [↑ Edit] and [↓ Mute] to scroll through the list of handsets.

To **change the handset type**, do as follows:

1. Select the handset you want to change.
2. Press [2nd] [↑ Edit].
3. Use [↑ Edit] and [↓ Mute] to scroll between TT-Handset, Headset, Not in Use, WH-10 and MagnaStar.
4. Press [OK] to select.

Note: The Headset selection is only for future use.

To Modify the List of Known GESs

Select **Known GESs** to view or change the list of known GESs.

To **add a GES** to the list, do as follows:

1. Press [2nd] [C Ins].
2. Type in:
   - Satellite ID, followed by [OK]
   - GES ID, followed by [OK]
   - GES Code, followed by [OK]
   - GES Name, followed by [OK]

To **delete a GES** from the list, do as follows:

1. Scroll to the GES you want to delete.
2. Press [2nd] [abc Del].

To **edit a GES**, do as follows:

1. Scroll to the GES you want to change.
2. Press 2nd Edit.
3. Type in:
   - Satellite ID, followed by OK
   - GES ID, followed by OK
   - GES Code, followed by OK
   - GES Name, followed by OK

To Modify the List of Known LESs

Select **Known LESs** to view or change the list of known LESs.

To **add a LES** to the list, do as follows:

1. Press 2nd Ins.
2. Type in:
   - LES Access (the Global LES Access Code), followed by OK
   - LES Name, followed by OK

To **delete a LES** from the list, do as follows:

1. scroll to the LES you want to delete.
2. Press 2nd Del.

To **edit the LES information**, do as follows:

1. scroll to the LES you want to change.
2. Press 2nd ↑Edit.
3. Type in:
   LES Access (the Global LES Access Code), followed by OK
   LES Name, followed by OK

To Change the Initial Satellite Information

Select **Init Sat** to view or change the list of satellites.

To **delete a satellite** from the list, do as follows:

1. Scroll to the satellite you want to delete.
2. Press 2nd Del.

To **edit the satellite information**, do as follows:

1. scroll to the satellite you want to change
2. Press OK.
3. Type in:
   Satellite ID, followed by OK
   Longitude, followed by OK
   The number for P-Channel #1, followed by OK
   The number for P-Channel #2, followed by OK

Status

Overview

The **Status** submenu is used for viewing signal strength, LAN status, navigation data, active errors, serial numbers and software versions.

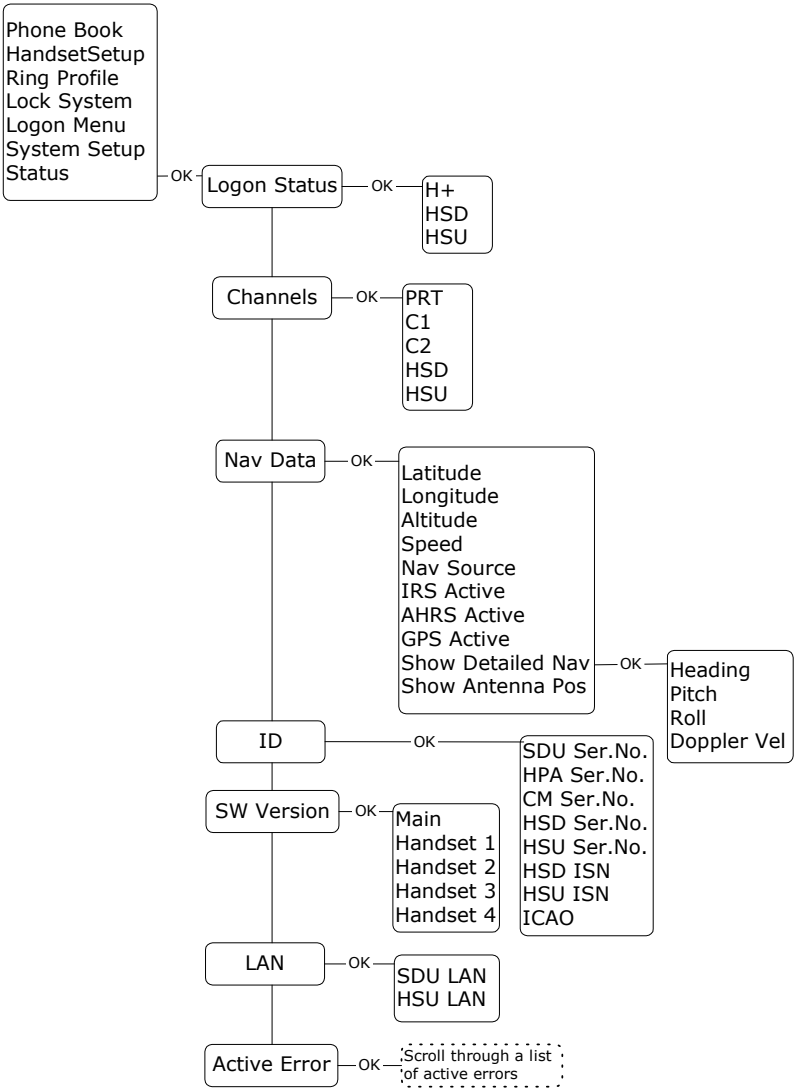
The Status menu has the following submenus:

- Logon Status
- Channels
- Nav data
- ID
- SW version
- LAN
- Active Error

Each of the submenus is described in the following pages.

The Status Menu

To access the Status menu, enter the main menu, scroll down to **Status** and press OK.



To View the Logon Status

Select **Logon Status** to display the logon status of:

- the H^+ channel
- the HSD channel
- the HSU channel (if installed)

Use ↑Edit and ↓Mute to select among the channels.

To View the Signal Strength of the Channels

Select **Channels** to display the signal strength (C/No in dBHz) of:

- PRT (P-channel)
- C1 (H^+ voice channel)
- C2 (H^+ voice channel)
- HSD (HSD channel)
- HSU (optional high speed channel, if installed)

Use ↑Edit and ↓Mute to select among the channels.

Note: For the channels to work properly, the value of the signal strength should be above the values mentioned below:

- P-Channel: above 35 dBHz
- C-Channels: above 42 dBHz
- HSD-Channel: above 54 dBHz
- HSU-Channel: above 54 dBHz

If no signal is present, the display shows N/A@N/A.

To View the Navigation Data

Select **Nav data** to display the navigation data:

- **Latitude** (in degrees, minutes, seconds)
- **Longitude** (in degrees, minutes, seconds
- **Altitude** (in feet)
- **Speed** (ground speed in knots)
- **Nav source** – the source used for navigation; can be IRS or AHRS+GPS
- **IRS Active** – shows whether or not the IRS is active
- **AHRS Active** – shows whether or not the AHRS is active
- **GPS Active** – shows whether or not the GPS is active
- **Show Detailed Nav**
  - Heading – (0 to 360 degrees)
  - Pitch (in degrees U or D (up or down))
  - Roll (in degrees L or R (left or right))
  - Doppler Velocity - the speed of the aircraft relative to the satellite, given in knots.
- **Show Antenna Pos** – the position of the antenna in degrees relative to the attitude of the aircraft, given as the Azimuth (horizontal position) and the Elevation (vertical position).

Use ↑Edit and ↓Mute to select among the Navigation parameters.

To enter the **Show Detailed Nav** menu, scroll to **Show Detailed Nav and** press OK.

To View Serial Numbers and ICAO Address

Select **ID** to display:

- SDU Ser. No. (Serial number of the Satellite Data Unit)
- HPA Ser. No. (Serial number of the High Power Amplifier)
- CM Ser. No. (Serial number of the Configuration Module)
- HSD Ser. No. (Serial number of the HSD board)
- HSU Ser. No. (Serial number of the optional High Speed data Unit, if installed)
- HSD ISN (Inmarsat Serial number of the HSD channel)
- HSU ISN
  (Inmarsat Serial number of the optional high speed channel, if installed)
- ICAO (ICAO Address)

Use ↑Edit and ↓Mute to scroll through the numbers.

To View the Software Version

Select **SW version** to display the version number of:

- Main software
- Handset 1 firmware
- Handset 2 firmware
- Handset 3 firmware
- Handset 4 firmware

Use ↑Edit and ↓Mute to scroll through the types of software.

To View the LAN Status

Select LAN to view the status of the network. You may view:

- SDU LAN (the status of the LAN connected to the SDU)
- HSU LAN (the status of the LAN connected to the optional HSU, if installed)

The status can be “connected” or “disconnected”.

To View Active Errors

Select **Active error** to display information of any active errors.

If there is more than one error, use Edit and Mute to scroll through the error list.

PC Connection

ISDN and MPDS

Overview

Please note: ISDN and MPDS services are only available on Aero-HSD$^+$ systems when the aircraft is positioned inside an area with Spot Beam coverage.

Mobile Packet Data Service (MPDS) and Integrated Services Digital Network (ISDN) are both services that enable the mobile user to connect to the Internet. The maximum data transfer rate is 64 kbit/s (optionally 128 kbit/s).

Difference Between MPDS and ISDN

The main difference between ISDN and MPDS is that with ISDN you are charged for connection time and with MPDS you are charged for Mbits transferred.

This means that for applications like Web browsing, email services, IP/LAN connectivity and small to medium size file transfer, the MPDS will be the most economic and convenient solution.

If, however, you need to transfer large files, ISDN is the better solution, because the connection is reserved for your purposes as long as you are connected. This means that in most cases you will get a faster file transfer.

MPDS/ISDN Mode

While in MPDS or ISDN mode the terminal is flagged busy in the Inmarsat network, i.e. it is not able to receive any ISDN calls, until it returns to normal idle mode.

Information on Setup

For information on how to set up the computer and transceiver for an **MPDS** connection, see **Setting up MPDS via Ethernet and PPPoE** on page 97.

For information on how to set up the computer and transceiver for an **ISDN** connection, see **Setting up ISDN** on page 101.

Setup of Data Equipment

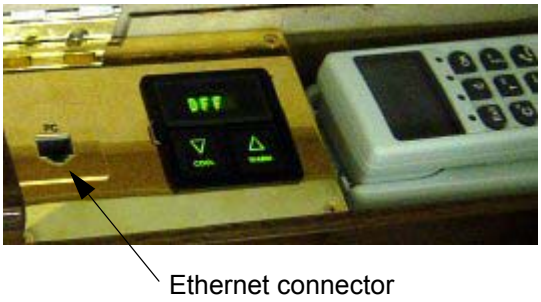
Hardware Connection

The illustrations below show typical hardware setups for MPDS ISDN and H+ modem data connections.

MPDS Ethernet Hardware Connection

For an MPDS over Ethernet session, connect a LAN cable between the Ethernet port of the computer and the Ethernet connector of the aircraft (connected to the Ethernet port on the Aero-HSD+ system).

Below is an example of where the Ethernet connector of the aircraft could be placed.



ISDN Hardware Connection

To establish an ISDN connection, do as follows:

If you have an internal ISDN modem (PC Card) in your computer, connect an ISDN cable between the ISDN modem PC Card in your computer and the ISDN connector of the aircraft (which must be connected to the ISDN port of the Aero-HSD$^+$ System).

If you have an external ISDN modem, connect the modem to the computer. See the manufacturer's installation guide for details on how to do this. Then connect an ISDN cable between the modem and the ISDN connector of the aircraft (which must be connected to the ISDN port of the Aero-HSD$^+$ System).

The appropriate modem driver must be installed on the computer. See the manufacturer's installation guide for details on how to do this.

H$^+$ Modem Hardware Connection

For an H$^+$ modem connection, do as follows:

If you have an internal modem (PC Card) in your computer, connect the modem PC Card in your computer to one of the POTS connectors of the Aero-HSD$^+$ System (Satcom #5 or #6).

If you have an external modem, connect the modem to the computer. See the manufacturer's installation guide for details on how to do this. Then connect the modem to one of the POTS connectors of the Aero-HSD$^+$ System (Satcom #5 or #6).

The appropriate modem driver must be installed on the computer. See the manufacturer's installation guide for details.

Setting up MPDS via Ethernet and PPPoE

This chapter describes the set-up and operation of MPDS connections via Ethernet and PPPoE using various PPPoE clients.

Windows® XP with Built-in PPPoE Client

Prerequisites

The PC must have an Ethernet adapter and Windows XP installed and both must be operational. There must be a network connection between the PC and the Aero HSD^{+} system.

Setting up the Connection

1. From the **Start** menu select **Settings**, then **Network Connections** and then **Create New Connection**.
   This brings up the New Connection Wizard.
2. Click **Next**.
3. Select **Connect to the Internet** and click **Next**.
4. Select **Setup my connection manually** and click **Next**.
5. Select **Connect using a broadband connection that requires a user name and password** and click **Next**.
6. Type a name for the connection, e.g.**MPDS via PPPoE** and click **Next**.
7. Select **Anyone's use** and click **Next**.
8. Type the user name and password received from the Inmarsat service provider.
   If no user name and password is provided, type in a random user name and password.
9. Click **Next**.
10. Select the shortcut on desktop option.
11. Click **Finish**.

12. Now click the new shortcut on the desktop named **MPDS via PPPoE**. The Aero-HSD$^+$ system should now connect to MPDS.

Note: Because of the relatively long set-up time for an MPDS connection, the PPPoE connection may some times time out. Wait for HSD C/No to go below 60 and then try again. You can see the HSD C/No in the handset menu, using **Status** > **Channels**.

Windows 2000 and WinPoET™ PPPoE Client

(Tested under MS Windows 2000)

The MPDS connection via Ethernet and PPPoE can be established using various PPPoE clients. For this example WinPoET client was used.

Prerequisites

The computer must have a working Ethernet adapter.

Windows Dial-Up Networking (DUN) must be installed.

Installation

The WinPoET program is contained in a self extracting zip-file.

1. Double click the icon, and installation begins.
2. Click **OK** and **Next** a few times to accept license agreement and accept rebooting the computer (only older windows versions).
3. To make the first connection with WinPoET, click the **Start** button, and find the new program folder “iVasion”.

4. In “iVasion”, click **WinPoET** and **WinPoET dialer**.

5. Type the user name and password received from the Inmarsat service provider.

   If no user name and password is provided, type in a random user name and password.

6. Click **Connect**.

The status field tells you how far you have reached in the connection process.

The phases of a successful connection are:

- Click **Connect** to start the connection process.
- Connecting to communications device.
- Starting authentication process.
- Starting projection phase.
- Authentication completed successfully.
- Connected.

After the first connection, WinPoET creates a ‘WinPoET Connection’ in the ‘Network and dial-up connections’ folder that can be used with the standard Windows DUN system (Automatic dialling and disconnection etc.).

Setting up ISDN

Overview

The Aero-HSD^{+} transceiver is connected to ISDN equipment via an ISDN cable.

The example below shows how to set up an Internet connection via ISDN.

Follow the modem manufacturer's installation instructions for the appropriate operating system.

In the following example, a Diva 852 modem is installed under Windows 2000.

Step 1: Installing a Modem

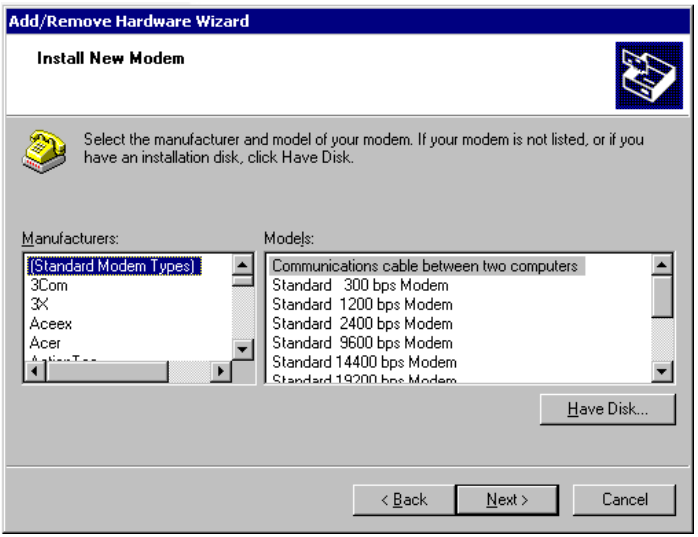
1. Select **Start** > **Settings** > **Control Panel** > **Phone and Modem Options**.

   Note: The **Find Location** window will appear if you have not previously installed a modem. Do not change anything here. Just click **OK** to continue.

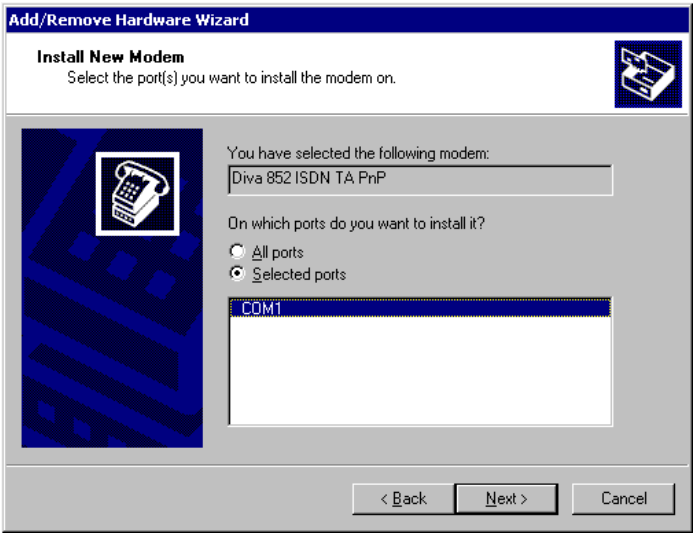
2. Select the tab **Modems**.
3. Click **Add...**

4. If you do **not** want the modem to be detected automatically, check the box.

5. Click **Next >**.



6. If the modem is not listed, click **Have Disk** and browse to the modem.
7. Select the modem and click **Next**.

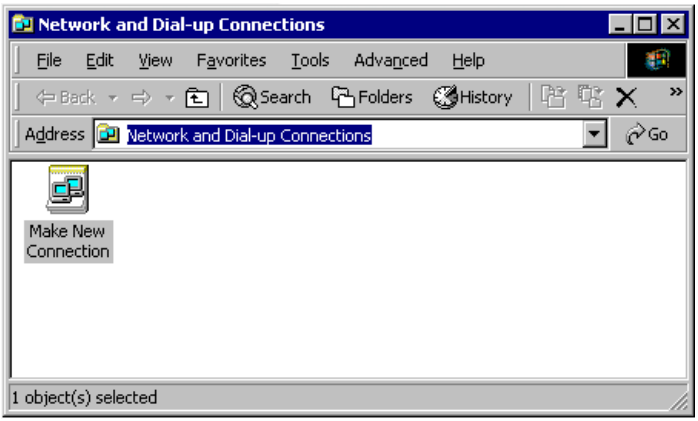


8. Choose **Selected ports** and the port the modem is connected to (COM1 in this case).

   You will be informed that these drivers are not “signed” by Microsoft.
9. Click **Yes** to accept the driver.
10. Click **Finish**.
11. Restart the computer.
12. Verify that the modem is installed.

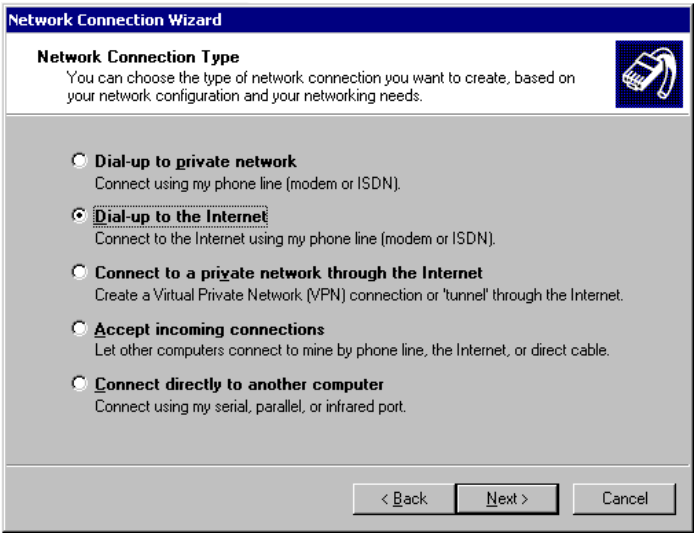
Step 2: Creating an ISDN Dial-up Connection for the Internet

1. Connect the PC with the ISDN interface of the aircraft, as described in **ISDN Hardware Connection** on page 96.
2. From the Desktop, double-click the **My Computer** icon.
3. Locate and select the **Network and Dial-Up Connections** shortcut in the **Control Panel** folder.

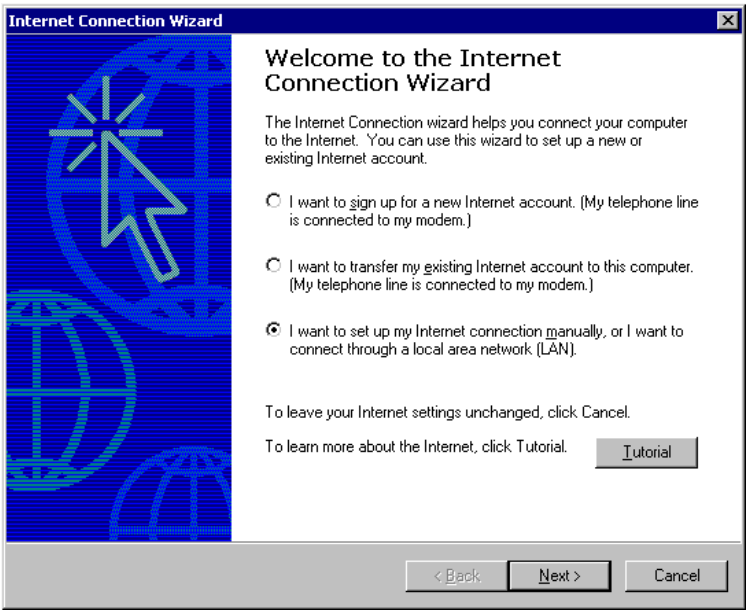


4. Double-click **Make New Connection**.

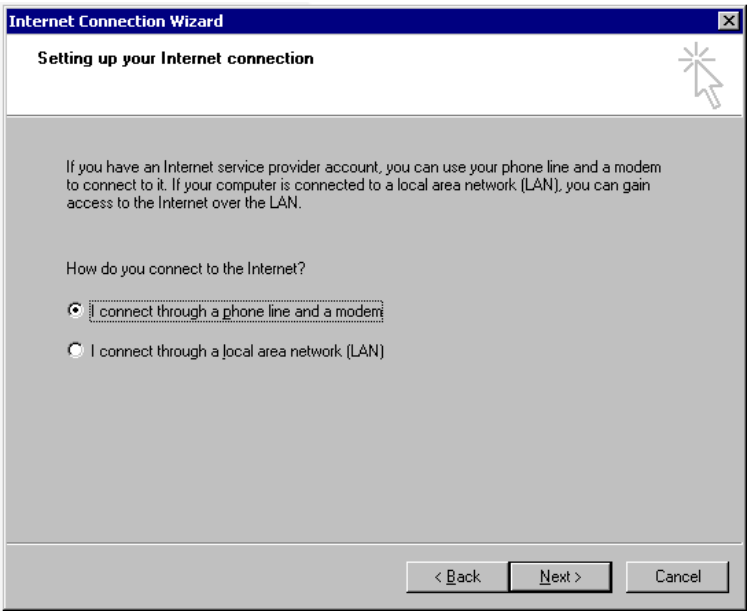
5. Click **Next >**.



6. Select **Dial-up to the Internet** and click **Next >**.

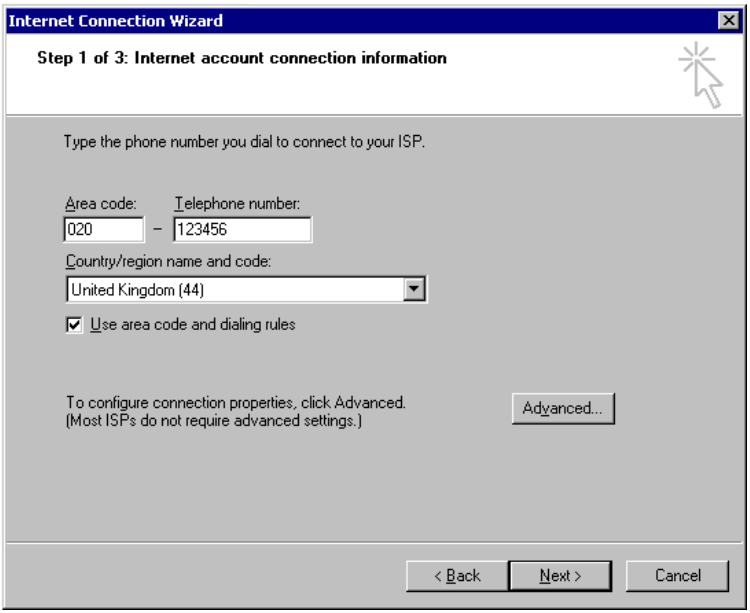


7. Select **I want to set up my Internet connection manually** and click **Next >**.



8. Select **I connect through a phone line and a modem** and click **Next >**.

9. Select the modem you wish to connect with and click **Next >**.



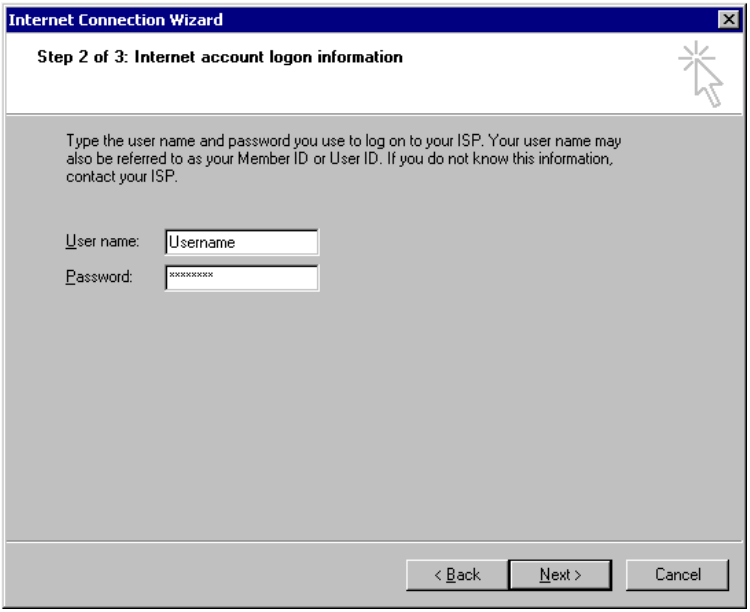
10. Type the dial-in phone number provided by your ISP in the Telephone Number field.

    If you do not have such a number, please contact your ISP.

    The number 123456 is just an example.

    Note: Most ISPs support the use of the short code 28# to access the internet via a modem pool in the LES.
    To use this service, deselect **Use area code and dialing rules** and type **28#** instead of the dial-in phone number.

11. Click **Next >**.



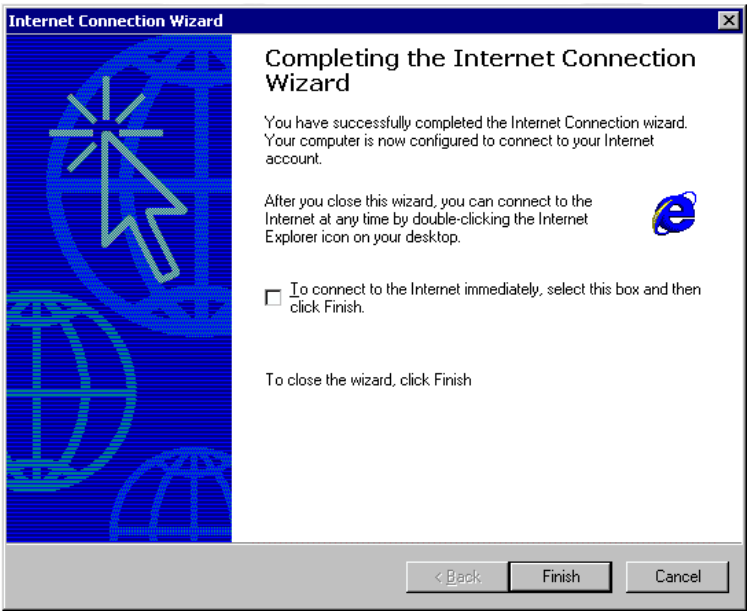
12. Type the user name and password received from the Inmarsat service provider.

    If no user name and password is provided, type in a random user name and password.

13. Click **Next >**.

14. Type in a connection name of your own choice and click **Next >**.

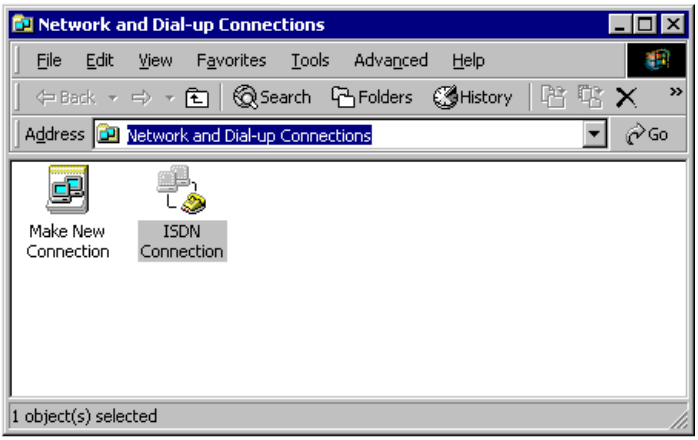
Note: Make sure the **To connect to the Internet immediately..** box is **unchecked**, as you have not quite finished setting up the connection yet.



15. Click **Finish**.

16. Open the **Networks and Dial-Up Connections** window again.

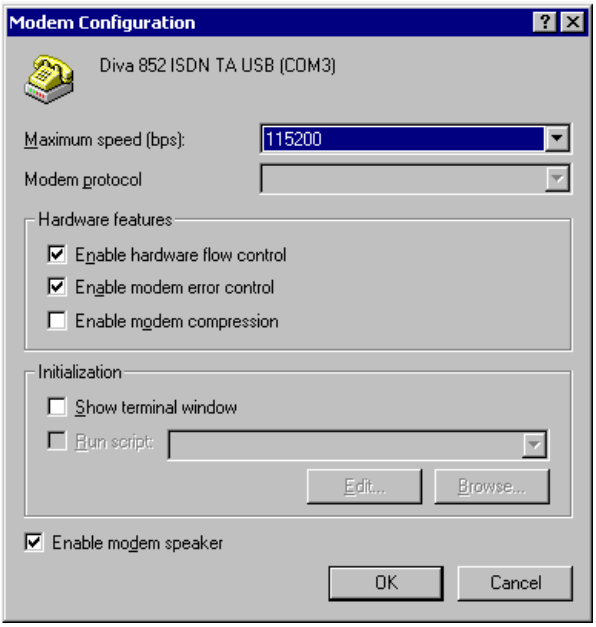
A new icon has appeared with the connection name you gave it in step 14.



17. Right-click the new icon and select **Properties**.

    When the Connection to ISP Properties window opens, you can see the modems installed on your computer.

18. Select the modem you have just installed and click **Configure**.
    In the Modem Configuration window, make sure that **Enable Modem Compression** is **deselected**, and that your hardware settings are as below.



19. Click **OK** and close the **Connection to ISP Properties** window.
    Your modem is now ready for use with the Internet.

After this, you can make the connection as described in the section **Connecting to the Network** on page 114.

Setting up an Analog Modem Connection

Overview

With the Aero-HSD$^+$ modem connection, you can use any application supporting modem speeds at 2400 bit/s and a satellite delay of 200 ms.

Step 1: Installing an Analog Modem

An analog modem is installed the same way as the ISDN modem. See **Step 1: Installing a Modem** on page 101.

Step 2: Creating a Dial-up Connection for the Internet

Follow the same procedure as for an ISDN modem, except when typing the phone number.

Important! For an analog modem connection, the prefix 00 must be replaced by 02 to indicate a data connection.

1. Connect the PC and modem with one of the POTS interfaces as described in **H+ Modem Hardware Connection** on page 96.
2. Proceed as described in **Step 2: Creating an ISDN Dial-up Connection for the Internet** on page 104, **except:**

   Important! In step 10, deselect **Use area code and dialing rules** and type in the complete number in the Telephone Number field. Remember that the prefix must be **02**, and that the number must be terminated with # !

Advanced Settings for the Modem Connection

Using a terminal program, enter the AT command relevant for your modem to set the following parameters:

- Communication protocol: V22bis and V42bis
- Error correction: LAPM
- Guard tone: OFF (if possible)

Note: AT commands can be pre-programmed in nearly all modems. Contact your modem manufacturer or consult the modem manual for further information.

Connecting to the Network

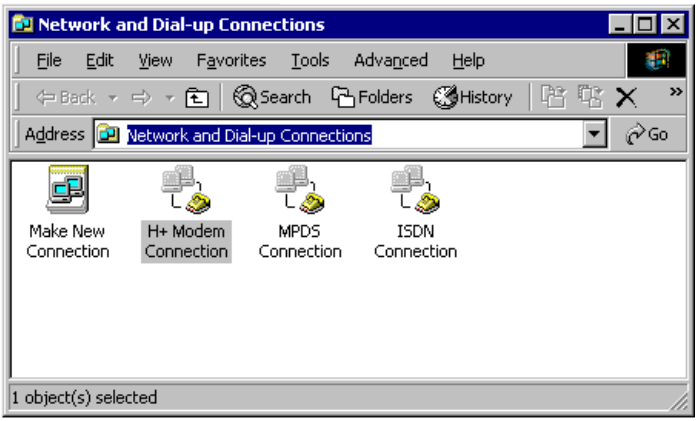
To Establish the Connection Automatically

A connection can be started automatically by an application like Internet Explorer or Outlook® Express. The connection can also be established manually.

To Establish the Connection Manually

Do as follows:

1. In windows, open **Dial-Up networking** and double-click the appropriate icon.



2. Enter username and password if necessary.
3. Click **Connect**.

   Wait for the connection to be completed, indicated by a 'Dial-up Networking' icon in the task bar tray.

You can disconnect by right-clicking the tray icon and choosing **Disconnect**.

Troubleshooting

Overview

In case of a fault situation, first check that the H+ and/or HSD LEDs in the handset are lit, and that the display reads “Ready”.

Also make sure that the transmission path is not obstructed, e.g. by buildings if the aircraft is on the ground.

The Aero-HSD+ system has different means of status signalling:

- **Error Messages.** The Aero-HSD+ system is able to display various error messages to help you troubleshoot the system. The following sections provide an overview and a list of some of the error messages you may see in the display.
- **LEDs**. For information on the LEDs on the handsets, see **LEDs** on page 17.
  Furthermore, the SDU, HPA and HSU (if installed) are equipped with LEDs for signalling their status. These LED functions are described in the section **System LEDs** on page 124.

If you need further assistance, please contact Thrane & Thrane at

Thrane & Thrane, Inc., USA

Tel.: +1(866) SATCOMS or
+1 757 463-9557

Thrane & Thrane A/S,
Denmark

Tel.: +45 39 55 88 00

Error Messages

If there is a fault, the type of fault and the fault code is displayed in the Full Feature handset. Where possible the fault code is translated into plain text. Two types of fault codes are defined:

- BITE (Built-In Test Equipment) errors
- Cause Codes

For a complete list of BITE error codes and Cause Codes, please refer to the Installation and Maintenance Manual.

BITE Errors

A BITE error is a hardware error detected by the built-in test equipment in the Aero-HSD$^+$ system.

The red LED on the handset indicates the presence of a fatal or essential BITE error.

- A **fatal** BITE error means that you are logged off and cannot log on again.
- An **essential** BITE error means that the functions are limited and one or more services are not available.
- A **non-essential** BITE error means that there are minor errors, but all services are still available. The red LED on the handset will not indicate this type of error.

Please report any BITE errors to the Maintenance Responsible.

When a BITE error is present, the display toggles between the error code and the previous display contents.
The BITE error is shown in the second line of the display. A BITE error has a unique 4-characters BITE code.

You can also view any active BITE errors in the **Status** menu under **Active Error**.

A list of BITE error codes is available in the Aero HSD$^+$ Installation and Maintenance Manual.

Cause Codes

A Cause Code describes a fault detected by the Earth Station during a call.

The cause codes can help you find the reason for an error. In most cases, errors are caused by a problem in the satellite network.

The Cause Code is displayed in the handset for a few seconds after the call is interrupted. If possible, the code is translated into plain text instead of the Cause Code. A Cause Code is a unique 4-characters code.

The Cause codes are divided into two types:
Logon Reject cause codes and Call Reject cause codes.

- Logon Reject cause codes appear during logon attempts.
- Call Reject cause codes appear after logon, during call attempts.

The following section shows the two lists of H^+ cause codes with explanations of the error messages.

List of H+ Cause Codes

Note: Cause Codes should not be mistaken for BITE error codes. See the previous page for an explanation of the two kinds of error codes.

Logon Reject Cause Codes

The following list shows the cause codes that may appear during logon.

Display text	ID	Description	Guidance
ClassReject	0x88	Class rejected	The GES does not support this class.
GlobChanLoss	0x82	Global channel loss	Verify that there are no obstacles between the satellite and the AES antenna.
GlobCunavlb	0x09	Global C channel not available at GES	
ManualLogRej	0x89	Manual logon rejected	Manual logon is not allowed when logon policy is automatic.
NetworkFail	0x03	Network Failure	
NoGesSignal	0x81	No GES signal	
NoInitData	0x86	No valid system table available	

Display text	ID	Description	Guidance
NoSatSignal	0x80	No satellite signal	Verify that there are no obstacles between the satellite and the AES antenna.
NotAuthorizd		AES not authorized	Verify that the ICAO address used is correct. Verify that the ICAO address is registered, by contacting the service provider.
OtherReason	0x0E	Other Reason	
OutsideCover	0x84	Outside spot beam coverage	The AES is not under a spot beam of the specified GES.
P/R/Tunavlb	0x07	Packet data channel unavailable	
PkdtaUnavlb	0x08	Packet data service unavailable	
SDUfailure	0x8A	SDU failure	Check the current BITE errors.
SpotChanLoss	0x83	Spot channel loss	
TableFull	0x00	Table Full	
UserLogoff	0x87	User logoff	
VCC&dUnavlb	0x0A	Voice not available at GES	
VoiceUnavlb	0x01	Voice Unavailable	

Display text	ID	Description	Guidance
WrongGES	0x85	GES not existing	Check GES ID validity.
WrongGESid	0x06	Wrong GES identifier	Check GES ID validity.
WrongParam	0x02	Wrong Parameter	
WrongSatID	0x05	Wrong Satellite identifier	Check satellite ID validity.

Call Reject Cause Codes

The following list shows some of the cause codes that may appear when the system is logged on. (S-C-V is Coding Standard, Cause Class and Cause Value)

Display Text	ID (S-C-V)	Inmarsat Description	Guidance
	0-1-0	Normal clearing.	
AddrComplete	1-0-1	Address complete.	
AESabsent	1-7-3	AES absent.	
AnalogFail	1-2-3	Analogue data equipment is not available.	
AnalogRate	1-6-2	Required analogue data rate is not supported.	
Busy	0-1-1	User busy.	
CallBared	1-4-3	Incoming calls are barred.	

Display Text	ID (S-C-V)	Inmarsat Description	Guidance
CallPreempt	1-1-1	Call is pre-empted.	
CallRejected	0-1-5	Call is rejected.	
CardInvalid	1-6-1	Credit card type is not supported.	
CardRejected	1-3-1	Credit card number is rejected.	
ChanAbsent	0-4-2	Channel type is not implemented.	
DigitalFail	1-2-4	Digital data equipment is not available.	
DigitalRate	1-6-3	Required digital data rate is not supported.	
GndDestFail	0-1-11	Destination out of service.	
Handover	1-7-4	Spot beam handover.	
InvalidAddr	1-3-2	Invalid/incomplete address.	
InvalidNumbr	0-1-12	Invalid number format.	
Network busy	1-5-1	Continuity failure	One end of the line has unexpectedly lost communication with the other, in most cases because the network is busy.
NetworkFail	0-2-6	Network is out of order.	

Display Text	ID (S-C-V)	Inmarsat Description	Guidance
NoAnswer	0-1-2	No user is responding.	
NoChanAvail	1-2-1	No channel is available.	
NoCircuit	0-2-2	No circuit/channel is available.	
NoRoute	0-0-3	No route to destination.	
NoUnitAvail	1-2-2	No channel unit is available.	Possible causes: 1. Both H+ voice channels are already in use, and none of the existing calls can be pre-empted. 2. Not enough EIRP to initiate a call, and no other call can be pre-empted. 3. All allocated H+ channels on the GES are in use.
SatDestFail	1-4-1	Destination out of service.	
ServiceType	1-6-5	Service type is not supported.	
SwitchBusy	0-2-10	Switching equipment congestion.	
UnassignedNo	1-7-2	Unassigned number.	

Display Text	ID (S-C-V)	Inmarsat Description	Guidance
Unauthorized	1-4-2	AES not authorized.	
Undefined	1-7-15	Undefined cause.	
Unspecified	0-1-15	Normal, unspecified.	
User Busy	1-7-1	User is busy.	
VoiceTypeErr	1-6-4	Voice channel type is not supported.	
WrongNumber	0-0-1	Unassigned number.	

System LEDs

SDU Power LED

The function of the power LED on the SDU is as follows:

LED Color	Description
Green	Power OK
Orange	Uploading software
Off	No power

SDU Logon LED (H^+)

The Logon LED on the SDU shows the H^+ logon status.

The HSD logon status is only signalled in the Full Feature handset.

The possible colors are listed below, with a short description of what they indicate:

LED Color	Description
Off	No acquired satellite
Red	Acquired a network satellite
Orange	Network synchronization
Green	Network logon

SDU Fail/Pass LED

The function of the Fail/Pass LED on the SDU is:

Behavior	Description
Steady red	Fail
Alternating: Short green / long pause	Power On Self Test (POST) or Person Activated Self Test (PAST) in progress
Alternating: Long green/ short orange 0.5 Hz	No current failure, but a BITE failure/ warning is logged in the error log
Steady green	No faults

HPA Power LED

The function of the power LED on the HPA is as follows:

LED Color	Description
Steady green	Power OK
Off	No power

HPA Fail/Pass LED

The function of the Fail/Pass LED on the HPA is:

Behavior	Description
Steady red	Fail
Off	No faults

HSU Power LED

The function of the Power LED on the HSU is:

Behavior	Description
Steady green	The unit is turned on and has completed POST test.
Flashes 0.25 s out of every 4 s (together with the red Fail LED – see below)	The unit is turned on but is waiting for the SDU (and has not yet started POST).
Flashes 0.5 s out of every 2 s	POST or PAST is in process.
Off	No power.

HSU Fail LED

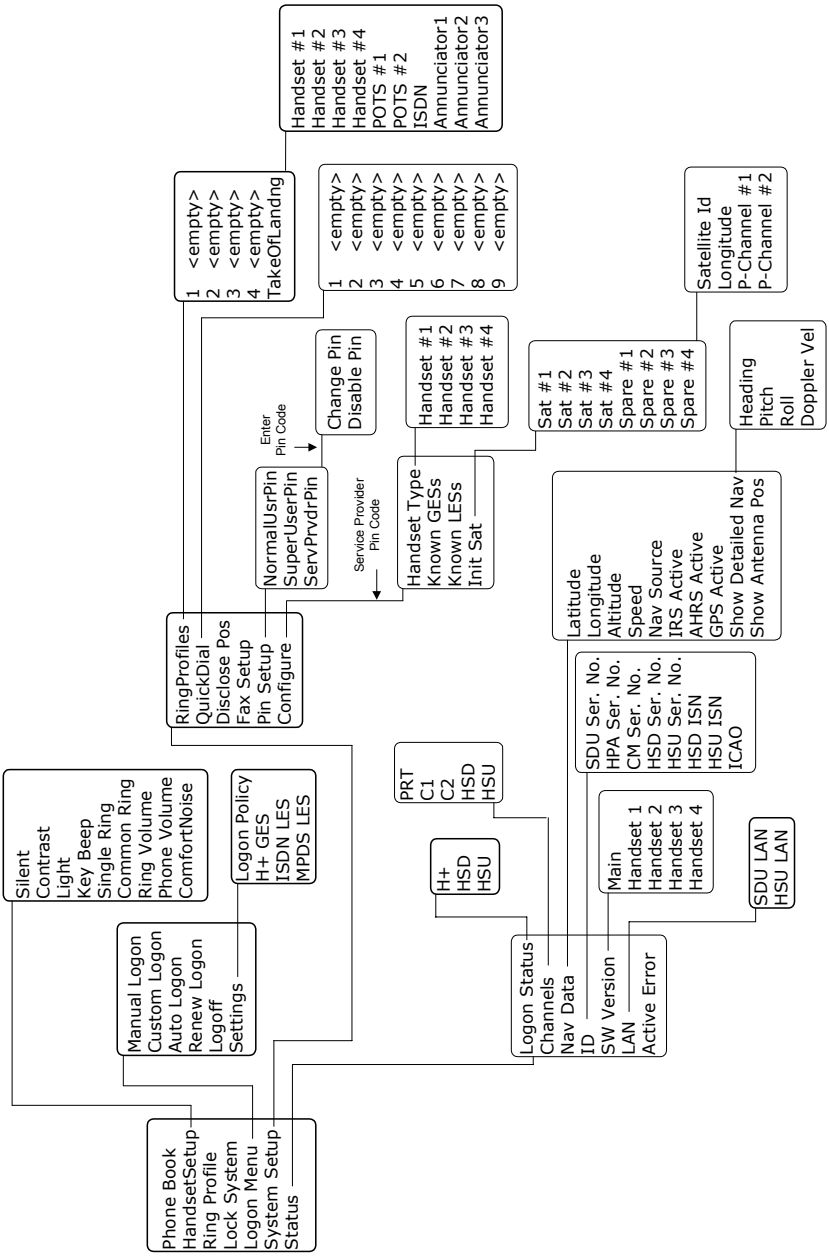
The function of the Fail LED on the HSU is:

Behavior	Description
Steady red	A fault which may degrade the system operation is present in the HSU.
Flashing (together with the Power LED – see above)	The unit is turned on but is waiting for the SDU (and has not yet started POST)
Off	Normal operation. No faults, and the unit is no longer waiting for the SDU.

Menu Tree

The next page shows an overview of the complete menu tree. For details on each menu, refer to the section **The Handset Menus** on page 56.

Menu Tree


Phone Book
HandsetSetup
Ring Profile
Lock System
Logon Menu
System Setup
Status
Silent
Contrast
Light
Key Beep
Single Ring
Common Ring
Ring Volume
Phone Volume
ComfortNoise
Logon Policy
H+ GES
ISDN LES
MPDS LES
Manual Logon
Custom Logon
Auto Logon
Renew Logon
Logoff
Settings
RingProfiles
QuickDial
Disclose Pos
Fax Setup
Pin Setup
Configure
1 <empty>
2 <empty>
3 <empty>
4 <empty>
TakeOfLandng
Handset #1
Handset #2
Handset #3
Handset #4
POTS #1
POTS #2
ISDN
Annunciator1
Annunciator2
Annunciator3
NormalUsrPin
SuperUserPin
ServPrvdrPin
Enter Pin Code
Change Pin
Disable Pin
Service Provider Pin Code
Handset Type
Known GESs
Known LESs
Init Sat
Handset #1
Handset #2
Handset #3
Handset #4
1 <empty>
2 <empty>
3 <empty>
4 <empty>
5 <empty>
6 <empty>
7 <empty>
8 <empty>
9 <empty>
Sat #1
Sat #2
Sat #3
Sat #4
Spare #1
Spare #2
Spare #3
Spare #4
Satellite Id
Longitude
P-Channel #1
P-Channel #2
Heading
Pitch
Roll
Doppler Vel
Latitude
Longitude
Altitude
Speed
Nav Source
IRS Active
AHRS Active
GPS Active
Show Detailed Nav
Show Antenna Pos
PRT
C1
C2
HSD
HSU
H+
HSD
HSU
SDU Ser. No.
HPA Ser. No.
CM Ser. No.
HSD Ser. No.
HSU Ser. No.
HSD ISN
HSU ISN
ICAO
Main
Handset 1
Handset 2
Handset 3
Handset 4
SDU LAN
HSU LAN
Logon Status
Channels
Nav Data
ID
SW Version
LAN
Active Error

List of Available GESs

If you need to log on to a GES which is not in the list of known GESs, you can use the Custom Logon function. See **To Make a Custom Logon** on page 67.

When you make a custom logon, you need to enter the Sat ID and GES ID for the GES you want to log on to. To find the Sat ID and GES ID, you may use the list below.

The following table shows a list of available GESs supporting H^+.

Ocean Region	Sat ID	GES ID	Name	Abbreviation
AORW	00	002	Southbury	SB
AORW	00	005	Aussaguel	AS
AORE	01	067	Aussaguel	AS
AORE	01	068	Eik	E
POR	02	130	Santa Paula	SP
POR	02	133	Perth	PH
IOR	03	193	Eik	EK
IOR	03	197	Perth	PH

Glossary

A

ACARS	Aircraft Communication Addressing & Reporting System
AES	Aircraft Earth Station. In this context, the Aero-HSD+ terminal.
AFIS	Automatic Flight Information Service
AHRS	Attitude and Heading Reference System. A reference system used for navigation. The AHRS only provides data concerning attitude and heading, so in order to obtain data concerning position a GPS system must be connected.
ARINC	Aeronautical Radio Inc. A non-profit corporation owned by member airlines to define form, fit and function of avionics equipment. The corporation has defined a set of standards within this area.

B

BGAN	Broadband Global Area Network
BITE	Built-In Test Equipment. A BITE error is a hardware error detected by the automatic error detection system in the Aero-HSD+ System.
Broadcast call	A call that is made to all handsets simultaneously. The first handset that replies establishes the connection, and the other handsets are disconnected from the call.

C

C-Channel	A bidirectional communications channel between ground and air. C-channels are typically used for voice communications.
CM	Configuration Module

CMU	Communications Management Unit

D

DUN	Dial-Up Networking

G

GES	Ground Earth Station. Earth Station used to route satellite communication using the H+ service.
GPS	Global Positioning System

H

HPA	High Power Amplifier
HSD	High-Speed Data
HSU	High Speed data Unit. An optional unit containing an additional high speed channel.

I

ICAO	International Civil Aviation Organization. An ICAO address is a unique 24-bit number assigned to an aircraft by the civil aviation authority of the state in which the aircraft is registered.
IMN	Inmarsat Mobile Number. The network identification for a specific service on a specified terminal.
Inmarsat	International Maritime Satellite Organisation. Cooperative of more than 50 countries that operates a global system of satellites for mobile communications, such as SATCOM.
IP	Internet Protocol

IRS	Inertial Reference System. A reference system used for navigation.
ISDN	Integrated Services Digital Network
ISN	Inmarsat Serial Number
ISP	Inmarsat Service Provider

L

LAN	Local Area Network
LCD	Liquid Crystal Display
LED	Light Emitting Diode
LES	Land Earth Station. Earth Station used to route satellite communication using the HSD service.

M

MPDS	Mobile Packet Data Service

N

NCS	Network Co-ordination Station

P

PAST	Person Activated Self Test
PC Card	Personal Computer memory Card. Modems or external hard disk drives, that can be plugged into notebook computers.

P-Channel	A channel which provides a uni-directional dedicated communications channel from a GES to all aircrafts. Data packets are broadcast over this channel and addressed to a specific aircraft.
PIN	Personal Identification Number
POST	Power On Self Test
POTS	Plain Old Telephony System. The traditional 2-wire telephone system.
PPPoE	Point-to-Point Protocol over Ethernet

S

SARF	Service Activation Registration Form. A document required by Inmarsat for Service Activation. It includes information such as the identity of the applicant, the type of equipment applied for and the services required.
SDU	Satellite Data Unit
STE	Secure Telephone Equipment
STU	Secure Telephone Unit
SW	Software
Swift64	An Inmarsat aeronautic High Speed Data service

U

UDI	Unrestricted Digital Information

W

WLAN	Wireless Local Area Network

Index

Numerics

A

B

C

D

E

F

G

H

I

K

L

M

N

O

P

Q

R

S

T

V

W