Satellite telephone SP 1600 B

Mobile phoning, faxing and data transmission across the globe.

Radio Communications

hagenuk
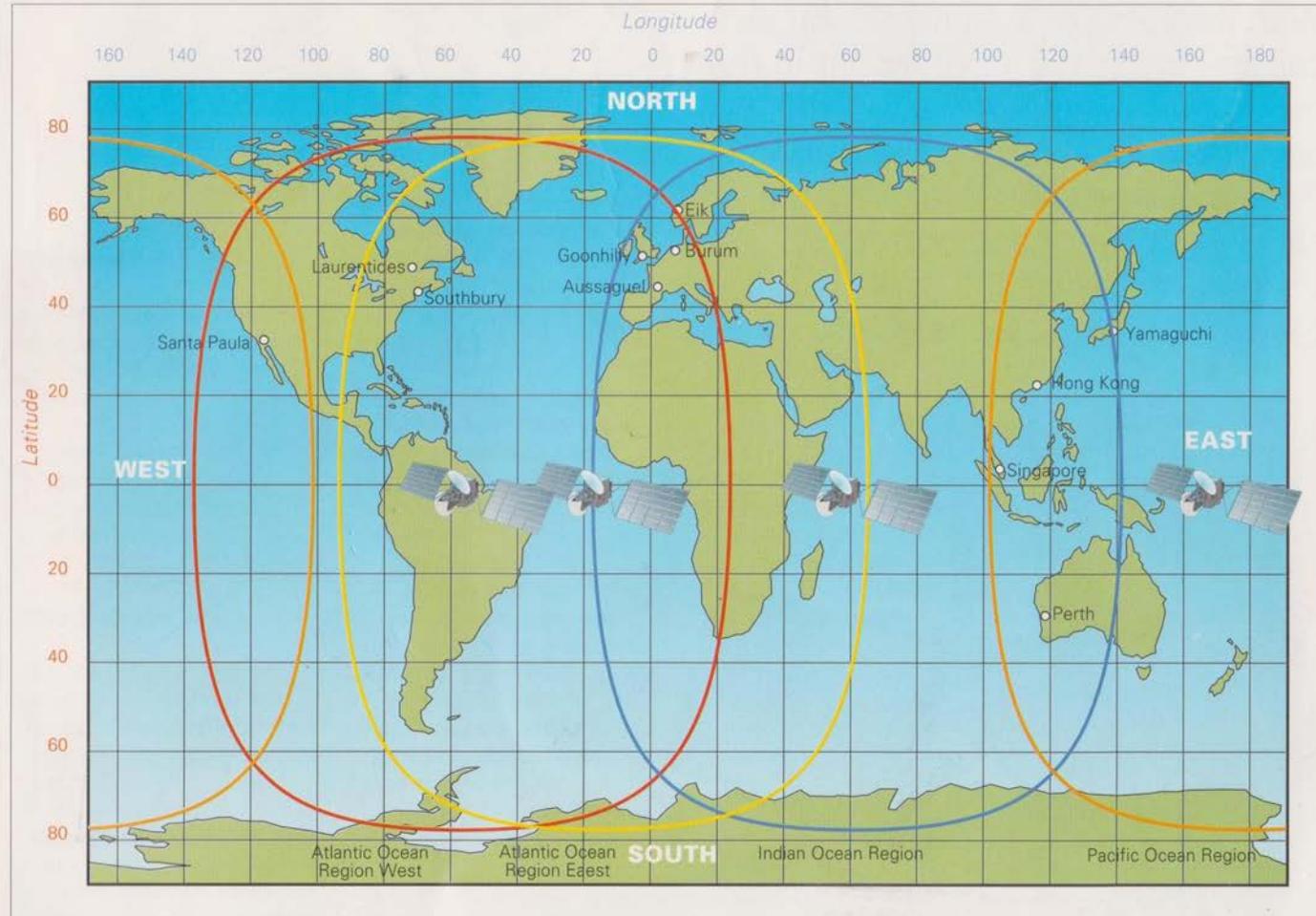
... setzt neue Maßstäbe

Briefcase-Version des SATPHONE SP 1600.

SP 1600

Das SP 1600 ist die Herausforderung für traditionelle Kommunikationstechnologien, wie z.B. Kurzwellenfunk, wobei

- Selbstwählverkehr im weltweiten Telefonnetz (in beiden Richtungen)
- Entfernungsunabhängigkeit
- Zuverlässigkeit der Verbindungen (z.B. unabhängig von Sonnenflecken)
- Resistenz gegen atmosphärische Störungen, bedingt durch den Frequenzbereich 1.5 bis 1.6 GHz
- sichere Spracherkennung
- Fax und Datenkommunikation
- hohe Mobilität
- günstiges Preis-/Leistungsverhältnis

die entscheidenden Argumente für das SP 1600 sind.

Technische Daten	
Frequenzbereich	1530,0 - 1660,5 MHz
Modulation	PSK
Kanalabstand	10 kHz
Übertragungsart	Duplex, fehlerkorrigiert und verschlüsselt
Sendeleistung	+42 dBm (ca. 16 W)
Empfangsempfindlichkeit	-139 dBm
Stromversorgung	110 - 240 V AC oder 10,5 - 32 V DC
Leistungsaufnahme	40 W Stand-by* 120 W Sendebetrieb*
Temperaturbereich	- 25 bis + 55°C
Feuchtigkeit	bis 95% bei + 40°C
Abmessungen*	46 cm x 37 cm x 14 cm
Gewicht*	12 kg
* Briefcase-Version	

Your worldwide connection.
Phoning, faxing and data transmission across the globe.

With the satellite telephone, you can call any internation subscriber in the public telephone network - from anywhere on earth, by self-dialling. People can call you in exactly the same way. From any normal telephone. Faxing and data transmission is also possible*.

4 versions.
For any occasion

A briefcase system for travelling businessmen, journalists or foreign correspondents, can be used in crisis areas or in development aid work.

A desk top model for embassies, research outposts, drilling rigs, company branches, building contracts abroad, etc.

A maritime system with automatic tracking aerial for professional and sporting craft and a mobile system for vehicles, e.g. for use by international forwarding agencies or bus companies.

*(optional)

Digital
and excellent quality.

Digital transmission technology offers considerable advantages: Economy of weight and space, lower initial and operating costs and a number of advantages over traditional shortwave technology such as worldwide automatic dialling, reliable connection system, dependability, operation without the need for a radio licence or specialist knowledge, excellent transmission quality for speech, fax and data as well as a still video transmission.

Safety checks at airports

When the briefcase is exposed to X-rays, security personnel may ask questions. Should this situation arise, show the Identification card which serves as a "clearance certificate".

Via satellite

Worldwide communication is possible via the 4 Inmarsat satellites. The satellites are called:

- Atlantic West (AOR-W)
- Atlantic East (AOR-E)
- Indian Ocean (IOR)
- Pacific Ocean (POR)

The charges

The charges include both satellite and earth-based connections but are only incurred when a connection has been made.

The actual tariffs can be obtained from your dealer.

The geostationary satellites appear to remain above a particular point. They can therefore be located without the aerial having to track.

The transmission signal goes first to the satellite and from there to an earth-based station. Here it is fed into the public telephone network.

Any earth-based station within range of the selected satellite can be used (see map). Select a station in the vicinity of the person you wish to call.

The stations are charging different rates and it may well be that a longer-distance call is better value for money!

Registration

Register at once by sending the enclosed form to the Routing Organisation of your country.

The Routing Organisation (Telekom in Germany) issues the telephone number as well as numbers for fax and data transmission. Read also Commissioning Instructions.
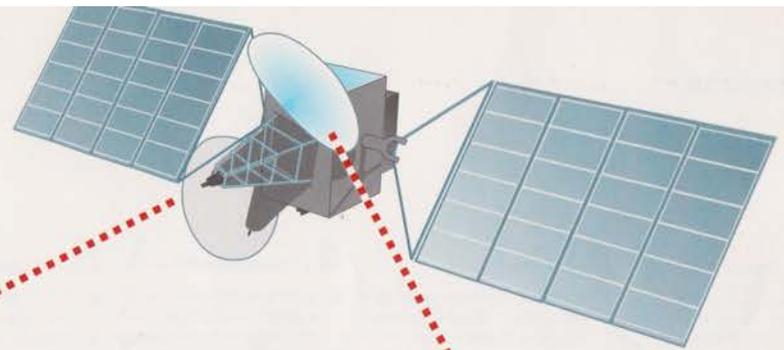
Operation

1. Power supply.

<u>12 to 24 V battery</u>
Connect the enclosed cable to the car battery*, or connect the battery pack.
* Have a special vehicle socket installed by your dealer.

<u>110 to 240 V ~socket</u>
Depending on the socket standard, this may need a plug adapter (available from specialist dealers).

2. Switching ON

A self-test takes place. Then last entered geographical position appears.

3. Aerial.

The aerial normally remains in the case lid. Fold out the compass support.

Align case lid.

The aerial (in the case lid) must be aligned to one of the 4 satellites. Obstacles such as trees, house walls etc. must not obstruct the "view" to the satellite. Clear window glass does not interfere with reception but tinted glass causes interference as does direct exposure to the sun's rays.

In poor conditions, extract aerial, pushing up the slide in the top centre of cover. Set up the aerial next to the case and align.

The available satellites are displayed:
● Select with cursor.
● Confirm with [SELECT].

The specifications for aerial alignment appear (compass and elevation).
Compass: For compass alignment of the aerial.
Elevation EL: For aerial inclination.

Azimuth (Az):
Direction of the satellite to the geographic north pole.

4. Location.

● Look for your own location on the map. 5° accuracy is sufficient.
● Is the correct location already in the display? If so, just confirm this. Otherwise enter degree of latitude longitude.

Enter the degree of latitude, then use key [ ] to select [SOUTH] or [NORTH]. Enter the degree of longitude in the same way.

5. Alignment.

● Set EL (elevation) with the support.
● Then set indicated compass value on compass ring (value must be in front of the triangel marker).
Now turn aerial until the red section of the needle points to **N**.
On satellite reception, READY TO USE appears and ● lights up.
Important:
At least 3 LEVEL-lamps must come on. This may last up to 3 minutes.
Improving reception:
-Turn aerial slightly.
-Wait briefly as the display LEVEL changes.

SAT: ATLANTIC-W
Set Antenna to
EL 10   Az: 250
Compass: 215
■SAT■
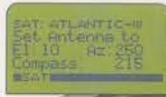
Incorrect entry?
Simply press EXIT and repeat entry

Caution:
Magnetic fields or iron in the vicinity will influence the compass.

Triangle

Support

6. Waiting for a call.

● You must be 'on reception".
Display: READY TO USE. The handset is on hook.
● The caller must dial according to the satellite to which you are aligned.

Enter here the telephone number of your satellite telephone.

Atlantic East
00 87 1   _ _ _ _ _ _ _ _ _

Pacific Ocean
00 87 2   _ _ _ _ _ _ _ _ _

Indian Ocean
00 87 3   _ _ _ _ _ _ _ _ _

Atlantic West
00 87 4   _ _ _ _ _ _ _ _ _

7. Dialling.

READY TO USE and the selected LES (land earth station) are displayed. To change selection: Press [LES].

You can also dial with the handset in place. If you wish to do this, press [DIAL] and pick up handset to speak.

Normal dialing

SOUTHBURY
Enter Tel. No
+ · · · · · · · · · · · · ·
or use BOOK
■REDIAL■■■■FAX■
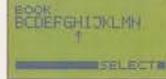
● Enter number.
Example: 49 431 88180

International prefix at the front, also within a country; e.g. 49 for Germany. Then area code without zero: e.g. 431 for Kiel. Then the subscriber number.

Correction:
[<] erases the last digit.

Changeover for fax or data number in advance using [FAX].

● Press [SEND] and dialling follows automatically.
Y lights up.

BOOK

BOOK
BCDEFGHIJKLMN
↑
■■■■■■SELECT■
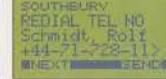
● Press BOOK key.
All alphabetic letters with entries are displayed.
● Select required initial letter with cursor, then press [SELECT].
● Subscriber names appear.
Selection using cursor then [SELECT].
● Press [SEND] and dialling follows automatically.

REDIAL

SOUTHBURY
REDIAL TEL NO
Schmidt, Rolf
+44-71-728-11>
■NEXT■■■■SEND■

● Press [REDIAL], the last number appears.
● [NEXT] for the second last and the third last.
● Press [SEND] and dialling follows automatically.

8. END.

● Put down handset or press [Stop].

Duration of the last call is displayed for 5 secs. Underneath the total call time is displayed.

● Press [Ok].
The next number can be dialled.

⚠ **Microwave Hazard**
Do not stand in front of the aerial in transmission mode.

Satellite received. —— Equipment transmitting. —— Incoming call.

The microphone is inoperative when the loudspeaker is switched on. Therefore, the person on the other end of the line cannot hear you.

Lights up for fault reporting.

If > appears, the respective keys control the cursor.

SOUTHBURY
REDIAL TEL NO>
Schmidt, Rolf
+44-71-728-11>
■NEXT■■■■SEND■

Unlocking, in order to take the handset out of the bracket.

Strength of received signal
At least 3 LEVEL-lamps must come on.

Dialogue keys for selecting the alternatives from the bottom display row.
In this case NEXT or SEND.

Call up telephone book.
Open selection menu.

Back to the last display. Right back to the start again by pressing several times.

If > appears in the display, the respective keys control the cursor.

ENTER to confirm the input of letters or the selection of menu points.

Enters a hyphen.
To enter telephone numbers.

Switch loudspeaker on/off with the handset removed.

Volume

Selection under MENU

> **Phonebook**
Access telephone book.

> **Accounting**
Duration of the last connection and total duration.

> **System**
- *Set date and time.*
- *Volume.*
- *Key beep ("key click") on/off.*
- *Earth Station (input of new earth stations).*
- *Software (Version number).*

> **PIN**
Set personal identification number.

Connection for 110 to 240 V AC 12 to 24 V DC

What you also need to know ...

Programming a telephone book

- Press MENU.
- Select Phonebook with cursor, then [SELECT].
- Select new entry with cursor, then [SELECT].

- Now select letter for letter with < > cursor and confirm with ENT each time.
  Max. 14 characters per name. Changeover from capital/small letters using ◊

- Confirm names entered with [Ok].
- Select TEL, FAX or DAT with cursor, then [SELECT].
- Enter number, then [OK]. Example: 49 431 88180

  International prefix at the front. Also within a country; e.g. 49 for Germany. Then area code without zero: e.g. 431 for Kiel Then the subscriber number.

  Correction [<-] erases the last number.

  *Long numbers are made easier to read using * key to enter a hyphen.*

- Select earth station with cursor, then [STORE]. *On auto, an earth station specified by the system is dialled.*

Changing telephone book

- Press MENU.
- Select phonebook with cursor, then [SELECT].
- Select edit entry with cursor, then [SELECT].

- Select initial letters with cursor, then [SELECT].
- Select name with cursor, then [SELECT].

- Move the cursor [<-] to the position to be changed and input the information from there onwards. Then [OK].

- Select TEL, FAX or DAT... ...as described under programming.

Erasing entry

- Press MENU.
- Select phone book with cursor, then [SELECT].
- Select delete entry with cursor, then [SELECT].

- Select initial letters with cursor, then [Ok].
- Select name with cursor, then [SELECT]

- Then [DELETE] to erase the entry.

Fax and Data

The equipment must be registered for fax and data transmission (Telekom). The relevant option must also be installed - it works like this:

- Place plug in the FAX or DATA socket.

- Now follow points 1 to 6 under "operation".

- Select [FAX]

- Now dial as described in point 7. *Here you can also use [REDIAL] or the telephone BOOK*

- Start fax or data transmission. *Refer to instructions for the fax equipment or software for data transmission.*

- Only put down the handset when the transmission is complete.

Aborting
Abort operations by pressing EXIT.

Switching OFF

To transport:

- Attention:
  First switch off.
- Then disconnect power supply.
- Lock aerial in case lid.

Stow away safely any accessories (e.g. fax equipment).

Hagenuk GmbH
Postfach 1149
D-24100 Kiel
Phone (431) 88 18 - 0
Telefax (431) 88 18 - 4306

Part number for ordering SF65.001.007-00A.0Z

What does it mean if...?

- ...Connection to satellite lost is displayed? - The connection to the satellite is interrupted, e.g. due to shading or rotation of the aerial.

- ...No communication channel available is displayed? All the satellite channels are currently engaged.

- ...System Update - please wait is displayed? - automatic data updates are being exchanged between the satellite and the telephone. This process can take up to 2 minutes.

- ...Error in sattelite link ...Call clear by inmarsat ...Call failed is displayed? – Try again.

- ...The red display ⊖ lamp is on Fault warning. - Switch the equipment off and on again. If the fault warning occurs again: inform Service Department.

Setting numerical code on case lock

- Open lid of case.
- First move the lever on the inside in the direction of the numbers, then upwards.
- Set required numbers (take care to memorize it.)

- Push the lever on the inside down again, then push it away from the numbers.
- Your secret code is thus stored.

Technical details

Transmission frequencies	1631.5 to 1660.5 MHz
Reception frequency	1530.0 to 1559.0 MHz
Transmit power	42dBm
Power supply	110 - 240 V AC, 50/60 Hz approx. 140 V A 10.5-32VDC, approx.120 W
Temperature range	-25 to 55 °C
Weight	8.7 kg

Accessories

|	
AC cable	2716.410
DC cable	3001.039
Operation Manual	
Optional:	
Interface Data/Fax	DFI 1600
Battery Pack	BP 1600
Flight case	FC 1600

In the event of sale or theft

Report change of ownership or cancel registration of satellite telephone immediately to the Routing Organisation where the equipment has been registered.

This is the fastest way you can prevent telephone calls being made at your expense.

In case of theft please call Inmarsat:
United Kingdom
(71) 728 -1020

Land Earth Stations and coordinates

Longitude

160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180

NORTH

Latitude

80

60

Goonhilly   Ei
             Burum
Aussagu

40
            Sthbury

Santa Paula   Yamaguchi

20   Hong Kong

WEST   Singapore   EAST

0

20   Perth

40

60

80
Antlantic Ocean   Antlantic Ocean   Indian Ocean Region   Pacific Ocean Region
Region West   Region East   SOUTH
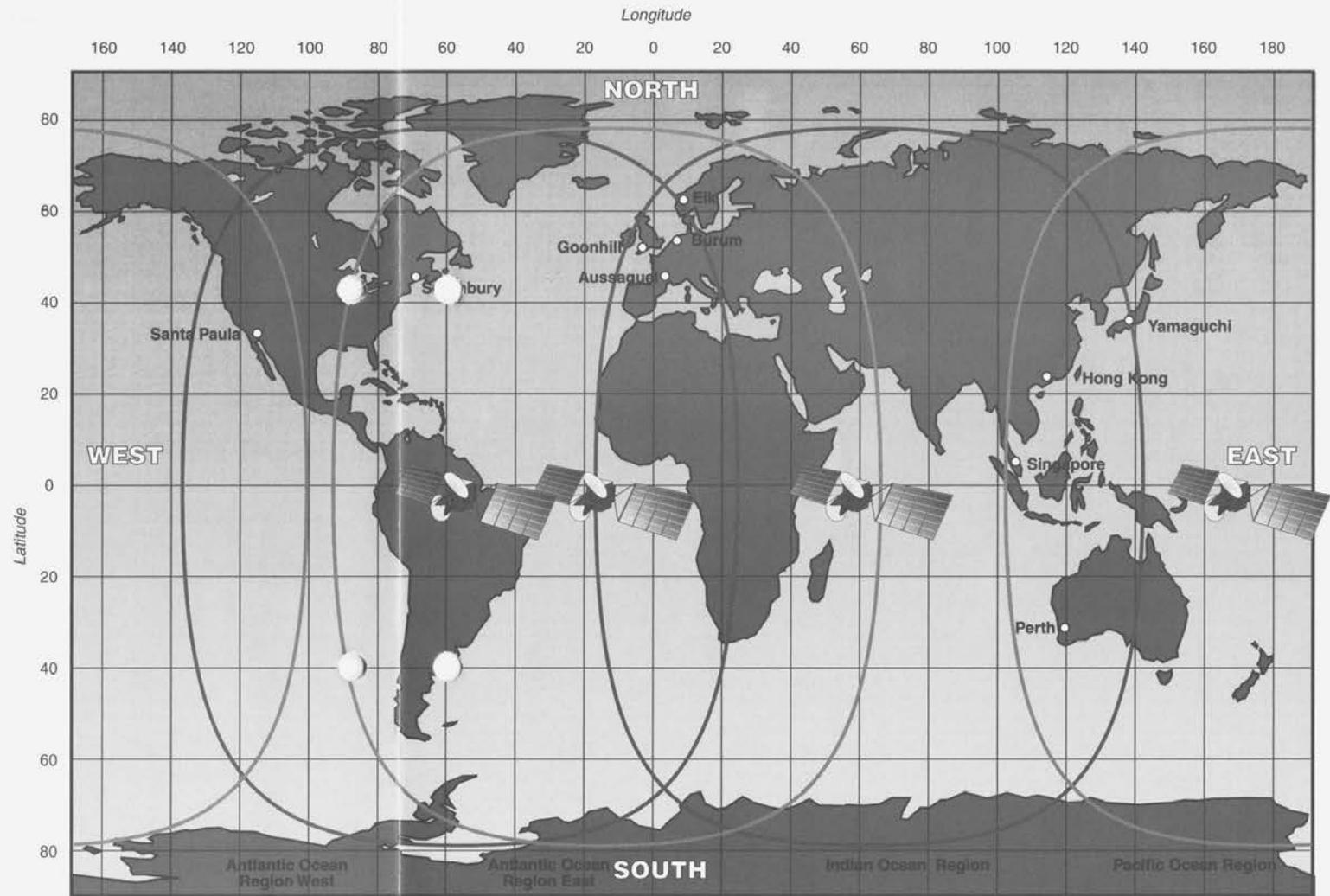
Satelliten telephone SP 1600 B
Reference locations and coordinates across the globe.

hagenuk

Reference locations and coordinates

Coordinates
The satellite telephone requests you to input the location. There are two ways of finding out the coordinates:

- you search for them on the map,

- or you use the coordinates of the nearest location from this list.

International dialling code
After each country code, is the abbreviated international dialling code in brackets.

On the SP 1600 B, use only the abbreviated international dialling code.

For information: an international dialling code always consists of two parts. In the case of 00 49 for Germany, for example, the first part (00) is the "exit code" from the dialling country and the second (49) the "access code" into the other country. As you are transmitting directly to the satellite, you need only the second part.

Compass declination
Magnetic North and geographical North do not coincide. This leads to a compass declination, depending on the location. - The value shown on the display of the SP 1600 B (compass) is already corrected.

The position in relation to geographical North (azimuth) is also displayed for information.

Caution: Iron in the vicinity will affect the compass!

Afghanistan (Operator)

Chahar Borjak	30 N 62 E
Feyzabad	37 N 71 E
Herat	34 N 62 E
Kabul	35 N 69 E

Alaska (1)

Anchorage	61 N 150 W
Barrow	71 N 157 W
Bethel	61 N 162 W
Cambridge Bay	69 N 105 W
Inuvik	68 N 134 W
Nome	65 N 165 W
Norman Wells	65 N 127 W
Skagway	59 N 135 W
Unalaska	54 N 167 W

Albania (355)

Tirana	41 N 20 E

Algeria (213)

Béchar	32 N 2 W
Constantine	36 N 6 E
Chenachane	26 N 4 W
Ghardaia	33 N 4 E
Illizi	26 N 8 E
In Salah	27 N 2 E
Ouallene	25 N 1 E
Tamanrasset	23 N 6 E
Tindouf	28 N 8 W

American Samoa (684)

Andorra (33)

Angola (244)

Cacólo	10 S 19 E
Dalatando	9 S 15 E
Folgares	15 S 15 E
Mavinga	26 S 20 E

Anguilla (1)

Antarctica

Budd Coas	67 S 113 E
Dumont d`urville	67 S 140 E
Mawson	73 S 68 E
McMurdo	78 S 166 E
Mirnyy	67 S 83 E
Molodeznaja	68 S 47 E
Port Lockroy	65 S 64 E
Scott Base	78 S 166 E
Showa	69 S 40 E
Vahsel Bay	78 S 35 E

Antigua and Barbuda (1)

Argentina (54)

Bahía Blanca	29 S 62 W
Buenos Aires	35 S 58 W
Calafate	50 S 72 W
Comodoro Rivadavia	46 S 68 W
Las Lajas	39 S 70 W
Mendoza	33 S 69 W
Resistencia	27 S 59 W
Saita	25 S 65 W
Santa Fe	32 S 61 W
Santiago del Estero	28 S 64 W
Telsen	42 S 67 W

Aruba (297)

Ascension (247)

Australia (61)

Adelaide	35 S 139 E
Alice Springs	24 S 134 E
Brisbane	28 S 153 E
Cairns	17 S 146 E
Carnarvon	25 S 114 E
Cunnamulla	28 S 146 E
Darwin	12 S 131 E
Forrest	31 S 128 E
Hay	34 S 144 E
Iron Range	13 S 143 E
Kalgoorlie	31 S 121 E
La Grange	19 S 122 E
Melbourne	38 S 145 E
Menzie	30 S 121 E
Nullagine	22 S 120 E
Oodnadatta	28 S 135 E
Perth	32 S 116 E
Ranken Store	20 S 137 E
Richmond	21 S 143 E
Rockhampton	23 S 151 E
Sydney	34 S 151 E
Tarcoola	31 S 135 E
Wave Hill	17 S 131 E
Wyndham	15 S 128 E

Austria (43)

Salzburg	48 N 13 E

Bahamas (1)

Bahrain (973)

Bangladesh (880)

Chittagong	22 N 92 E
Dacca	24 N 90 E

Bahrain Qatar (973)

Ad-Dawhah	25 N 52 E

Barbados (1)

Belgium (32)

Belize (501)

Belmopan	17 N 89 W

Benin (229)

Sokodé	9 N 1 E

Bhutan (Operator)

Thimbu	27 N 90 E

Bolivia (591)

La Paz	17 S 68 W
Magdalena	13 S 64 W
Puerto Rico	11 S 68 W
Santa Cruz	18 S 63 W
Tupiza	21 S 66 W

Botswana (267)

Maun	20 S 23 E
Shoshong	23 S 27 E
Tshabong	26 S 22 E

Brazil (55)

Altamira	3 S 52 W
Aruana	15 S 51 W
Belém	1 S 48 W
Bôca do Acre	9 S 67 W
Brasília	16 S 44 W
Campina Grande	7 S 36 W
Campo Grande	20 S 55 W
Caracaraí	2 N 61 W
Corumbá	19 S 58 W
Cruzeiro do Sul	8 S 73 W
Floriano	7 S 43 W
Fortaleza	4 S 39 W
Governador Valadares	19 S 42 W
Gradaús	8 S 51 W
Humaitá	8 S 63 W
Manaus	4 S 60 W
Mineiros	18 S 53 W
Natividade	12 S 48 W
Parintins	3 S 57 W
Pôrto Alegre	30 S 51 W
Riachão	7 S 47 W
Rio de Janeiro	23 S 43 W
Salvador	13 S 39 W
Santo Ângelo	28 S 54 W
São Luís	3 S 44 W
Sao Paolo de Olivença	4 S 69 W
São Paulo	24 S 47 W
Serra do Navio	1 N 52 W

Uaupés	0 S 67 W
Utiariti	13 S 58 W
Vitória da Conquista	15 S 41 W

British Virgin Islands (1)

Brunei (673)

Bandar Seri Begawan	5 N 115 E

Bulgaria (359)

Plovdiv	42 N 25 E

Burkina Faso (226)

Burma

Mandalay	22 N 96 E
Putao	27 N 97 E
Rangoon	17 N 96 E

Burundi (257)

Bujumbura	3 S 29 E

Cambodia

Phnum Pénh	12 N 105 E

Cameroon (237)

Garoua	9 N 13 E
Yaoundé	4 N 12 E

Canada (1)

Arctic Bay	73 N 85 W
Baffin Island	68 N 70 W
Baker Lake	62 N 96 W
Battle Harbour	52 N 56 W
Bella Coola	52 N 127 W
Cape Dorset	64 N 77 W
Carcross	60 N 135 W
Cassiar	59 N 130 W
Channel-Port-aux-Basques	48 N 59 W
Charlottetown	46 N 63 W
Chicoutimi	48 N 71 W
Churchill	59 N 94 W
Clinton	51 N 122 W
Clyde	70 N 69 W
Coppermine	68 N 115 W
Coral Harbour	64 N 83 W
Dundas Pen.	75 N 112 W
Edmonton	54 N 113 W
Fort Chimo	58 N 58 W
Fort Franklin	65 N 124 W
Fort George	54 N 79 W
Fort Good Hope	66 N 129 W
Fort Mc Pherson	67 N 135 W
Fort Nelson	59 N 123 W
Fort Providence	61 N 118 W
Fort Simpson	62 N 121 W

Frobisher Bay	64 N 68 W
Gagnon	52 N 68 W
Gjoa Haven	6 N 96 W
Goose Bay	53 N 60 W
Halifax	45 N 65 W
Holman Island	71 N 118 W
Hopewell Islands	58 N 78 W
Igloolik	69 N 82 W
Inuvik	68 N 134 W
Kenora	50 N 94 W
Kent Pen.	69 N 107 W
Lynn Lake	57 N 101 W
Meander River	59 N 118 W
Montreal	45 N 74 W
Nain	56 N 62 W
Norway House	54 N 98 W
Old Crow	68 N 140 W
Pelly Crossing	63 N 137 W
Pickle Crow	52 N 90 W
Pond Inlet	73 N 78 W
Port Alice	50 N 127 W
Port Radium	66 N 118 W
Poste- Mistassini	50 N 74 W
Rankin Inlet	63 N 92 W
Red Lake	51 N 94 W
Resolute	75 N 95 W
Ross River	62 N 132 W
Sabine Pen.	76 N 110 W
Sachs Harbour	72 N 125 W
Saskatoon	52 N 107 W
Schefferville	55 N 67 W
Snag	62 N 140 W
Snowdrift	62 N 111 W
South Indian Lake	57 N 99 W
Spence Bay	70 N 94 W
St. John`s	48 N 53 W
Stewart	65 N 130 W
Stony Rapids	59 N 106 W
Summit Lake	54 N 123 W
Thunder Bay	48 N 89 W
Timmins	48 N 81 W
Toronto	44 N 79 W
Vancouver	49 N 123 W
Watson Lake	60 N 129 W
Whitehorse	60 N 135 W
Winnipeg	50 N 97 W

Cape Verde (238)

Cayman Islands (1)

Central Afrikan Empire (236)

Bangui	4 N 19 E
Bria	7 N 22 E
Gordil	10 N 22 E

Chad (235)

Am Timan	11 N 20 E
Koro Toro	16 N 19 E
Koumra	9 N 18 E
Ndjamena	12 N 15 E
Oum Chalouba	16 N 21 E
Zouar	20 N 17 E

Chile (56)

Antofagasta	24 S 70 W
Balmaceda	46 S 72 W
Concepción	37 S 73 W
Copiapó	27 S 71 W
Iquique	20 S 70 W
Osorno	41 S 73 W
Porvenir	53 S 70 W
Puerto Natales	52 S 73 W
Santiago	33 S 71 W

China (86) (excl. Taiwan)

Aershan	47 N 120 E
Akesu	41 N 80 E
Balikun	44 N 94 E
Baoshan	25 N 99 E
Bejing	40 N 116 E
Buerjin	48 N 87 E
Changdu	31 N 97 E
Changsha	24 N 116 E
Yitulihe	51 N 122 E
Chongqing	30 N 107 E
Fuzhou	28 N 116 E
Guangzhou	23 N 113 E
Haerbin	46 N 127 E
Haikou	20 N 110 E
Hong Kong	22 N 114 E
Huhehaote	41 N 112 E
Huma	52 N 127 E
Jitai	44 N 89 E
Kashi Kashgar	39 N 76 E
Kunming	25 N 103 E
Lasa	30 N 91 E
Luoyang	35 N 113 E
Mangya	38 N 91 E
Nanjing	32 N 118 E
Nanning	23 N 108 E
Pishan	37 N 78 E
Qiemo	38 N 86 E
Saga	30 N 85 E
Shanghai	31 N 122 E
Shenyang	42 N 123 E
Shenzha	31 N 89 E
Shuanyashan	47 N 131 E
Wuhan	31 N 114 E
Wulumuqi	44 N 88 E
Xi`an	34 N 109 E
Xining	37 N 102 E
Yinchuan	39 N 106 E
Yining (Kuldja)	44 N 81 E

Yumen	40 N 98 E
Yutian	36 N 81 E
Zhaxigang	33 N 80 E

Colombia (57)

Bogotá	5 N 74 W
Cartagena	10 N 76 W
La Chorrera	1 S 73 W
Popayán	2 N 77 W

Congo (242)

Gamboma	2 S 16 E
Pointe-Noire	5 S 12 E
Ouesso	2 N 16 E

Cook Islands (682)

Costa Rica (506)

San José	10 N 84 W
Mérida	9 N 71 W
Valencia	10 N 68 W

Cuba (537)

Camagüey	21 N 78 W
La Habana	23 N 82 W

Cyprus (357)

Levkosía	35 N 33 E

Czechoslovakia (42)

Brno	49 N 17 E

Denmark (45)

Odense	55 N 10 E

Djibouti (253)

Djibouti	12 N 43 E

Dominican Republic (1)

Santo Domingo	18 N 70 W

Easter Island

Hanga Roa	27 S 109 W

Ecuador (593)

Quito	0 S 79 W

Egypt (20)

Al-Qâhirah	30 N 31 E
Aswân	24 N 33 E
Siwah	29 N 26 E

El Salvador (503)

San Salvador	14 N 89 W

Equatorial Guinea (Op.)

Bata	2 N 10 E
Ndjole	0 S 11 E

Ethiopia (251)

Addis Abeba	9 N 39 E
Asmera	15N 39 E
Begi	9 N 35 E
Harer	9 N 42 E
Kebri Dehar	7 N 44 E

Faeroer Islands (289)

Falkland Islands (500)

Fiji (679)

Suva	18 S 178 E

Finland (358)

Jyväskylä	62 N 26 E
Sodankyla	67 N 27 E

France (33)

Marseille	43 N 5 E
Paris	49 N 2 E

French Guiana (594)

Cayenne	5 N 52 W

French Polynesia (689)

Gabon (241)

Gambia (220)

Banjul	13 N 17 W

Germany (49)

Frankfurt/ Main	50 N 9 E

Ghana (233)

Kumasi	7 N 2 W

Gibraltar (350)

Grenada (1)

Greece (30)

Athen	38 N 24 E

Greenland (299)

Angmagssalik	66 N 38 W
Etah	78 N 73 W
Godhavn	69 N 54 W
Godthåb	64 N 52 W
Julianehåb	61 N 46 W
Thule	77 N 69 W

Guadeloupe (590)

Guam (671)

Guatemala (502)

Guatemala	15 N 91 W

Guinea (224)

Conakry	10 N 14 W
Kankan	10 N 9 W

Guinea-Bissau (Operator)

Bissau	12 N 16 W

GUS (7)

Alma Ata	43 N 77 E
An`ujsk	68 N 162 E
Aral´sk	47 N 62 E
Archangel`sk	65 N 41 E
Aschabad	38 N 58 E
Astrachan	46 N 48 E
Baku	40 N 50 E
Berezniki	59 N 57 E
Beringovskij	63 N 179 E
Bodajbo	58 N 114 E
Bratsk	56 N 102 E
Buchara	40 N 64 E
Bukacaca	53 N 117 E
Buolkalach	73 N 120 E
Celkar	48 N 60 E
Chabarovsk	48 N 135 E
Chonuu	66 N 143 E
Cita	52 N 114 E
Cokurdach	71 N 148 E
Dusanbe	39 N 69 E
Dusekan	61 N 109 E
Ekonda	66 N 105 E
Gonam	57 N 131 E
Gyda	71 N 79 E
Irkutsk	52 N 104 E
Jakutsk	62 N 130 E
Karaganda	50 N 73 E
Karaul	70 N 83 E
Karaul	70 N 83 E
Kazacje	71 N 136 E
Kijev	50 N 31 E
Kirovsk	68 N 34 E
Komsomol`sk-na Amure	51 N 137 E

Krasnoarmejskij	70 N 172 E
Krasnojarsk	56 N 93 E
Krasnovodsk	40 N 53 E
Kujbysev	55 N 49 E
Kurgan	55 N 65 E
Lavrentija	66 N 171 E
Leningrad	60 N 30 E
Maca	60 N 118 E
Magadan	60 N 151 E
Magadan	60 N 151 E
Magnitogorsk	53 N 59 E
Matockin Sar	73 N 56 E
Minsk	54 N 28 E
Morosecnoje	56 N 156 E
Moskva	56 N 38 E
Murukta	68 N 102 E
Narjan-Mar	68 N 53 E
Nel`kan	58 N 136 E
Noril`sk	69 N 88 E
Novorybnoje	73 N 106 E
Novosibirsk	55 N 83 E
Novyj Port	68 N 73 E
Ochotsk	59 N 143 E
Odessa	46 N 31 E
Okt`abr`skoje	62 N 66 E
Olen`ok	69 N 112 E
Omsk	55 N 73 E
Omsukcan	63 N 156 E
Orsk	51 N 59 E
Ozernovskij	52 N 156 E
Pachaca	61 N 169 E
Palana	59 N 160 E
Perm	58 N 56 E
Petropavlovsk-Kamcatskij	53 N 159 E
Pol`kino	71 N 99 E
Poronajsk	49 N 143 E
Riga	57 N 24 E
Rostov-na-Donu	47 N 40 E
Sologoncy	66 N 114 E
Sos`va	64 N 62 E
Suordach	67 N 132 E
Surgut	54 N 51 E
Sverdlovsk	57 N 61 E
Syktyvkar	62 N 51 E
Tambej	72 N 72 E
Tareja	73 N 91 E
Tarko-Sale	65 N 78 E
Taskent	41 N 69 E
Tblisi	42 N 45 E
Tit`Ary	72 N 127 E
Tokko	60 N 120 E
Tuoj-Chaja	63 N 111 E
Ucami	64 N 96 E
Uchta	64 N 54 E
Udza	71 N 117 E
Uka 58	N 162 E
Ussurijsk	50 N 127 E
Ust- Belaja	66 N 173 E
Ust-N`ukza	57 N 122 E

Ust`-Nera	65 N 143 E
Ust´-Kamenogorsk	50 N 83 E
Vankarem	68 N 176 W
Verescagino	64 N 88 E
Vladivostok	43 N 132 E
Vorkuta	67 N 64 E
Zigansk	67 N 123 E
Zyr`anka	66 N 151 E

Guyana (592)

Georgetown	7 N 58 W
Lethem	3 N 60 W

Haiti (509)

Port au Prince	19 N 72 W

Honduras (504)

Tegucigalpa	14 N 87 W

Hong Kong (852)

Hungary (36)

Budapest	48 N 19 E

Iceland (354)

India (91)

Ahmadabad	23 N 73 E
Bangalore	13 N 78 E
Bombay	19 N 73 E
Calcutta	23 N 89 E
Delhi	29 N 77 E
Dibrugarh	27 N 95 E
Jabalpur	23 N 80 E
Jalpaiguri	27 N 89 E
Jodhpur	26 N 73 E
Nagpur	21 N 79 E
Patna	26 N 85 E
Raipur	23 N 91 E
Silchar	25 N 93 E
Srinagar	30 N 79 E
Varanasi	25 N 83 E
Vishakhapatnam	18 N 83 E

Indonesia (62)

Ambon	4 S 128 E
Bandung	7 S 108 E
Banjarmasin	3 S 115 E
Demta	2 S 140 E
Denpasar	9 S 115 E
Dili	9 S 126 E
Flores	9 S 121 E
Kepi	7 S 139 E
Kuching	2 N 110 E
Manado	1 N 125 E
Medan	4 N 99 E
Modowi	4 S 135 E
Padang	2 S 109 E
Palembang	3 S 105 E
Pontianak	0 S 109 E
Samarinda	1 S 117 E
Tarakan	3 N 118 E
Ujung Pandang	6 S 120 E

Iran (98)

Bampur	27 N 61 E
Bandar `Abbas	27 N 56 E
Esfahan	33 N 52 E
Kerman	30 N 57 E
Kermanshah	34 N 47 E
Mashhad	36 N 60 E
Shiraz	30 N 53 E
Tabriz	38 N 46 E
Tehran	36 N 51 E

Iraq (964)

Al- Basrah	31 N 48 E
Al-Mawsil	36 N 43 E
Ar- Rutbah	33 N 40 E
Baghdad	33 N 44 E

Ireland (353)

Dublin	53 N 6 W

Israel (972)

Yerushalayim	32 N 35 E

Italy (39)

Catania	38 N 15 E
Milano	45 N 9 E
Roma	42 N 12 E

Ivory Coast (225)

Bouaké	8 N 5 W

Jamaica (1)

Kingston	18 N 77 W

Japan (81)

Kitakyusu	34 N 131 E
Kyoto	35 N 136 E
Sapporo	43 N 141 E
Tokyo	36 N 140 E

Jordan (962)

Kenya (254)

Gabun	1 S 12 E
Lodwar	3 N 36 E
Mombasa	4 S 40 E
Nairobi	1 S 37 E
Wajir	2 N 40 E

Kiribati (686)

Korea North (82)

P`yongyang	39 N 126 E

Korea South (850)

Soul	38 N 127 E

Kuwait (965)

Al-Kuwayt	29 N 48 E

Laos

Louangphrabang	20 N 102 E
Saravan	16 N 106 E

Lesotho (266)

Lebanon (??)

Bayrut	34 N 36 E

Liberia (231)

Monrovia	6 N 11 W

Libya (218)

Al- `Irq	29 N 22 E
Al- Jawf	24 N 23 E
Awbari	27 N 13 E
Banghâzî	32 N 20 E
Tarâbulus	33 N 13 E
Waw al Kabir	25 N 17 E

Liechtenstein (41)

Madagascar (261)

Diégo-Suarez	12 S 49 E
Fianarantsoa	21 S 47 E

Malawi (265)

Malaysia (60)

Kuala Lumpur	3 N 102 E

Mali (223)

Malta (356)

Marianen (670)

Marshall Islands (692)

Martinique (596)

Fort de France	15 N 61 W

Mauritania (222)

Bir Mogrein	25 N 12 W
Fdérjk	23 N 13 W
Nouakchott	18 N 16 W
Tichit	18 N 10 W

Mauritius (230)

Port Louis	20 S 58 E

Mayotte (269)

Mexico (52)

Chihuahua	29 N 106 W
Ciudad de México	19 N 99 W
Durango	24 N 105 W
Ensenada	32 N 117 W
Guadalajara	21 N 103 W
Hermosillo	29 N 111 W
La Paz	24 N 110 W
Mérida	21 N 90 W
Moterrey	26 N 100 W
San Ignacio	27 N 113 W
Villahermosa	18 N 93 W

Micronesia (691)

Monaco (33)

Mongolei

Bulgan	46 N 91 E
Chatgal	50 N 100 E
Cojbalsan	49 N 115 E
Dalandzadgad	44 N 105 E
Sajnsand	45 N 110 E
Tamsagbulag	47 N 117 E
Ulaanbaatar	48 N 107 E
Ulaangom	50 N 92 E
Uliastaj	48 N 97 E

Montserrat (1)

Morocco (212)

Fès	34 N 5 W
Sidi Ifni	29 N 10 W

Mozambique (258)

Maputo	26 S 32 E
Massangena	22 S 23 E
Maüa	14 S 37 E
Sena	17 S 35 E

Myanmar (95)

Namibia (264)

Epukiro	22 S 19 E
Okaukuejo	19 S 16 E

Nauru (674)

Nepal (977)

Netherlands (31)
Eindhoven   51 N 5E

Netherlands Antilles (599)

New Caledonia (687)
Noumea   22 S 166 E

New Zealand (64)
Auckland   37 S 175 E
Christchurch   44 S 173 E
Dunedin   46 S 171 E
Wellington   81 S 175 E

Nicaragua (505)
Matagalpa   113 N 86 W

Niger (227)
Agadez   17 N 8 E
Bilma   19 N 13 E
Chirfa   21 N 12 E
Niamey   14 N 2 E
Tahoua   15 N 5 E

Nigeria (234)
Kaduna   11 N 7 E
Maiduguri   12 N 13 E
Makurdi   8 N 9 E
Oshogbo   8 N 5 E

Northern Ireland (44)

Norway (47)
Bodø   67 N 14 E
Fagernes   61 N 9 E
Hammerfest   71 N 24 E
Tromsø   70 N 19 E

Oman (968)
Al-Jawarah   19 N 57 E
Masqat   24 N 59 E
Salalah   17 N 54 E

Pakistan (92)
Islamabad   34 N 75 O
Karachi   25 N 67 O
Multan   30 N 71 O
Panjgur   27 N 64 O

Palau (6)

Panama (507)
Panamá   9 N 80 W

Papua New Guinea (675)
Dagua   3 S 143 E
Danu   5 S 147 E
Port Moresby   10 S 147 E

Paraguay (595)
Carreria   22 S 59 W
Villarrica   26 S 56 W

Peru (51)
Arequipa   16 S 72 W
Chiclayo   7 S 80 W
Cuzco   14 S 80 W
Iquitos   4 S 73 W
Lima   12 S 77 W

Philippines (63)
Davao   7 N 126 E
Iloilo   11 N 123 E
Manila   15 N 121 E
Taytay   11 N 120 E

Poland (48)
Lodz   51 N 19 O

Portugal (351)
Lisboa   39 N 9 W

Puerto Rico (1)
San Juan   19 N 66 W

Reunion (262)

Rhodesia
Salisbury   18 S 32 O
Bulawayo   20 S 29 O

Romania (40)
Sibiu   46 N 24 O

Rwanda (250)
Kigali   2 S 30 O

St. Christoph and Nevis (1)

St. Helena (290)

St. Lucia (1)

St. Pierre and Miquelon (508)

St. VIncent (1)

Samoa Islands (685)
Apia   14 S 172 W

San Marino (39)

Sao Tome and Principe (239)

Saudi Arabia (966)
Al- Jawf   30 N 40 E
Al- Madinah   24 N 40 E
Al-Ubaylah   22 N 51E
Ar-Riyad   25 N 47 E
Ha`il   28 N 42 E
Makkah   21 N 40 E

Scotland (44)
Glasgow   56 N 4 W

Senegal (221)
Dakar   15 N 17 W
Tambacounda   14 N 14 W

Seychelles (248)
Victoria   5 S 55 O

Sierra Leone (232)
Freetown   9 N 13 W

Singapore (65)
Singapore   1 N 104 O

Solomon Islands (677)
Honiara   9 S 160 O

Somalia (252)
Hargeysa   10 N 44 O
Gardo   10 N 49 O
Mogadisho   2 N 45 O

South Africa (27)
Bloemfontein   29 S 26 O
Cape Town   33 S 18 E
Durban   30 S 31 O
East London   33 S 28 O
Kakamas   29 S 21 O
Keetmanshoop   27 S 18 O
Pietersburg   24 S 29 O

Spain (34)
Barcelona   41 N 2 O
Madrid   40 N 4 W
Oviedo   43 N 6 W

Sri Lanka (94)
Colombo   7 N 80 O

Sudan (249)
Al- Atrun   18 N 27 O
Al- Fâshir   14 N 25 O
Al- Khurtûm   16 N 33 O
Bûr- Sûdan   20 N 37 O
Fangag   9 N 31 O
Jûbâ   5 N 32 O
Raga   8 N 26 O

Suriname (597)

Swaziland (268)

Sweden (46)
Ånge   63 N 16 E
Gällivare   67 N 21 E
Örebro   59 N 15 E

Switzerland (41)
Bern   47 N 7 E

Syria (963)
Al- Hasakah   37 N 41 E
Dimashq   31 N 36 E
Halab   36 N 37 E

Tahiti
Papeete   18 S 150 W

Taiwan (886)
T`aipei   25 N 122 E

Tanzania (255)
Arusha   3 S 37 E
Lilongwe   14 S 34 E
Mahenge   8 S 37 E
Malawi   12 S 35 E
Mwanza   3 S 33 E
Rungwa   7 S 32 E

Tasmania (61)
Hobart   43 S 147 E

Thailand (66)
Chiang Mai   19 N 99 E
Krung Thep   14 N 101 E
(Bangok)
Phuket   8 N 98 E

Togo (228)

Qatar (974)

Tonga (676)
Nukualofa   21 S 175 W

Trinidad and Tobago (1)
Port of Spain   11 N 62 W

Tunisia (216)
Remada   32 N 10 E
Tunis   36 N 10 E

Turkey (90)
Erzurum   40 N 41 E
Eskisehir   40 N 31 E
Malatya   39 N 38 E

Turks and Caicos Islands (1)

Uganda (256)
Kampala   0 N 32 E

United Arab Emirates (971)
Dubayy   25 N 55 E

United Kingdom (44)
London   52 N 1 W

United States (1)
Albuquerque   35 N 107 W
Atlanta   34 N 84 W
Bismarck   47 N 101 W
Boston   42 N 71 W
Buffalo   43 N 79 W
Butte   46 N 113 W
Cedar City   38 N 113 W
Charleston   38 N 82 W
Charlotte   35 N 81 W
Columbus   40 N 83 W
Dallas   33 N 97 W
Denver   40 N 105 W
Duluth   47 N 92 W
Eugene   44N 123 W
Houston   30 N 95 W
Jacksonville   30 N 82 W
Las Vegas   36 N 115 W
Los Angeles   34 N 118 W
Marquette   42 N 88 W
Miami   26 N 80 W
Miles City   46 N 106 W
Millinocket   46 N 67 W

Milwaukee   43 N 88 W
Nashville   36 N 87 W
New Orleans   30 N 90 W
Odessa   32 N 102 W
Phoenix   33 N 112 W
Rawlins   42 N 107 W
Sacramento   38 N 122 W
San Antonio   29 N 99 W
Scottsbluff   42 N 104 W
Seattle   48 N 122 W
Shreveport   33 N 94 W
Sioux City   43 N 97 W
Spokane   48 N 118 W
Springfield   37 N 93 W
Toledo   42 N 84 W
Twin Falls   43 N 114 W
Washington   39 N 77 W
Wichita   38 N 97 W

Upper Volta (226)
Ouagadougou   12 N 2 W

Uruguay (598)
San Gregorio   33 S 56 W

Vanuatu (678)

Venezuela (58)
Ciudad Guayana   8 N 63 W

Vietnam (848)
Da-nang   16 N 108 E
Ha-noi   21 N 106 E
Thanh-Pho
Ho Chi Minh   11 N 107 E

Virgin Islands (1)

Yemen (967)
Aden   13 N 45 E
Al-Gaydah   16 N 52 E
San`a'   15 N 44 E
Say`un   16 N 49 E

Yugoslavia (38)
Sarajewo   44 N 18 E

Zaire (243)
Bumba   2 N 22 E
Kalima   3 S 27 E
Kananga   6 S 22 E
Kinshasa   4 S 15 E
Kisangani   1 S 25 E
Likasi   11 S 27 E
Manono   7 S 27 E
Mbandaka   0 N 18 E
Mungbere   3 N 29 E

Zambia (260)
Chinsali   11 S 32 E
Kalabo   15 S 23 E
Lusaka   15 S 28 E

Existing and planned Land Earth Stations 1993/94

Australia	Perth
Canada	Laurentides
France	Aussaguel
Hong Kong	Cape d´Aguilar
Japan	Yamaguchi
Netherlands	Burum
Norway	Eik
Singapore	Sentosa
UK	Goonhilly
USA	Santa Paula
USA	Southbury

Country	Country Code	Int. Dial Code	National Prefix	National Phone Format	Offset from UTC/DST
Afghanistan	93	00	0	9 digits	+4.30
Albania	355	00	0	3 to 9 digits	+1/+2
Algeria	213	00	0	8, 9 digits	+1
American Samoa	1	011	1	(684)+7 digits	-11
Andorra	376	00	...	6, 8, 9 digits	+1/+2
Angola	244	00	0	9 digits	+1
Anguilla	1	011	1	(264)+7 digits	-4
Antigua and Barbuda	1	011	1	(268)+7 digits	-4
Argentina	54	00	0	10 digits	-3
Armenia	374	00	0	8 digits	+4/+5
Aruba	297	00	...	7 digits	-4
Ascension	247	00	...	4 digits	UTC
Australia	61	0011	0	4 to 15 digits	+10/+11
Australian External Territories	672	00	0	6 digits	+11.30
Austria	43	00	0	4 to 13 digits	+1/+2
Azerbaijan	994	00	0	8 to 9 digits	+4/+5
Bahamas	1	011	1	(242)+7 digits	-5/-4
Bahrain	973	00	...	8 digits	+3
Bangladesh	880	00	0	6 to 10 digits	+6
Barbados	1	011	1	(246)+7 digits	-4
Belarus	375	810	8	9 to 10 digits	+2/+3
Belgium	32	00	0	8 to 9 digits	+1/+2
Belize	501	00	...	7 digits	-6
Benin	229	00	...	8 digits	+1
Bermuda	1	011	1	(441)+7 digits	-4/-3
Bhutan	975	00	...	7 to 8 digits	+6
Bolivia (Plurinational State of)	591	00	0	8 digits	-4
Bosnia and Herzegovina	387	00	0	8 digits	+1/+2
Botswana	267	00	...	7 to 8 digits	+2
Brazil	55	00	0	10 digits	-3/-2
Ecuador	593	00	0	8 digits	-5
Egypt	20	00	0	7 to 9 digits	+2/+3
El Salvador	503	00	...	7, 8. 11 digits	-6
Equatorial Guinea	240	00	...	6 digits	+1
Eritrea	291	00	0	7 digits	+3
Estonia	372	00	...	7 to 10 digits	+2/+3
Ethiopia	251	00	0	9 digits	+3
Falkland Islands (Malvinas)	500	00	...	5 digits	-4/-3
Faroe Islands	298	00	...	6 digits	UTC/+1
Fiji	679	00	...	7 digits	+12
Finland	358	00,99X	0	5 to 12 digits	+2/+3
France	33	00	0	9 digits	+1/+2
French Departments and Territories in the Indian Ocean	262	00	...	9 digits	+3, +4
French Guiana	594	00	...	9 digits	-3
French Polynesia	689	00	...	6 digits	-10
Gabon	241	00	...	6, 7 digits	+1
Gambia	220	00	...	7 digits	UTC
Georgia	995	8	8	8 digits	+4
Germany	49	00	0	6 to 13 digits	+1/+2
Ghana	233	00	0	5 to 9 digits	UTC
Gibraltar	350	00	...	8 digits	+1/+2
Global Mobile Satellite System (GMSS), shared code	881				
Greece	30	00	0	10 digits	+2/+3
Greenland	299	00	...	6 digits	-3/-2
Grenada	1	011	1	(473)+7 digits	-4
Group of countries, shared code	388				
Guadeloupe	590	00	...	9 digits	-4
Guam	1	011	1	(671)+7 digits	+10
Guatemala	502	00	...	8 digits	-6
Guinea	224	00	...	8 digits	UTC
British Virgin Islands	1	011	1	(284)+7 digits	-4
Brunei Darussalam	673	00	...	7 digits	+8
Bulgaria	359	00	0	7 to 9 digits	+2/+3
Burkina Faso	226	00	...	8 digits	UTC
Burundi	257	00	...	8 digits	+2
Cambodia	855	001, 007	0	8 digits	+7
Cameroon	237	00	...	8 digits	+1
Canada	1	011	1	10 digits	-5/-4
Cape Verde	238	00	...	7 digits	-1
Cayman Islands	1	011	1	(345)+7 digits	-5
Côte d'Ivoire	225	00	...	8 digits	UTC
Central African Rep.	236	00	...	8 digits	+1
Chad	235	00	...	6, 7 digits	+1
Chile	56	1YZ0	1YZ	8 to 9 digits	-4/-3
China	86	00	0	5 to 12 digits	+8
Colombia	57	009/007/005	09/07/05	8. 10 digits	-5
Comoros	269	00	...	7 digits	+3
Congo	242	00	...	6 to 7 digits	+1
Cook Islands	682	00	...	5 digits	-10
Costa Rica	506	00	...	8 digits	-6
Croatia	385	00	0	8 to 12 digits	+1/+2
Cuba	53	119	0	6 to 8 digits	-5/-4
Cyprus	357	00	...	8. 11 digits	+2/+3
Czech Rep.	420	00	...	4 to 12 digits	+1/+2
Dem. People's Rep. of Korea	850	00	0	3 to 10 digits	+9
Dem. Rep. of the Congo	243	00	0	5 to 9 digits	+1
Denmark	45	00	...	8 digits	+1/+2
Diego Garcia	246	00	...	7 digits	+6
Djibouti	253	00	...	6 digits	+3
Dominica	1	011	1	(767)+7 digits	-4
Dominican Rep.	1	011	1	(809/829)+7 digits	-4
Guinea-Bissau	245	00	...	7 digits	UTC
Guyana	592	001	...	7 digits	-4
Haiti	509	00	...	8 digits	-5
Honduras	504	00	...	7, 8 digits	-6
Hong Kong, China	852	001	...	4, 8 to 9 digits	+8
Hungary	36	00	06	8 to 9 digits	+1/+2
Iceland	354	00	...	7, 9 digits	UTC
India	91	00	0	7 to 10 digits	+5.30
Indonesia	62	001.008	0	5 to 10 digits	+7
Inmarsat SNAC	870	00	...	9 digits	
International Freephone Service	800	...	...	8 digits	
International Networks, shared	882				
International Networks, shared	883				
International Premium Rate Service (IPRS)	979	...	...	9 digits	
International Shared Cost Service (ISCS)	808	...	...	8 digits	
Iran (Islamic Republic of)	98	00	0	6 to 10 digits	+3.30/+4.30
Iraq	964	00	0	8 to 10 digits	+3
Ireland	353	00	0	7 to 11 digits	UTC/+1
Israel	972	00,012,013,014	0	8 to 9 digits	+2/+3
Italy	39	00	...	up to 11 digits	+1/+2
Jamaica	1	011	1	(876)+7 digits	-5
Japan	81	010	0	9 to 10 digits	+9
Jordan	962	00	0	5 to 9 digits	+2/+3
Kazakhstan	7	810	8	10 digits	+6
Kenya	254	000	0	6 to 10 digits	+3
Kiribati	686	00	...	5 digits	+12
Korea (Rep. of)	82	001,002	0,082	8 to 11 digits	+9
Kuwait	965	00	...	7, 8 digits	+3
Kyrgyzstan	996	00	0	9 digits	+6

Country	Code	Intl. prefix	Trunk prefix	Number length	Time
Lao P.D.R.	856	00	0	8 to 9 digits	+7
Latvia	371	00	...	7, 8 digits	+2/+3
Lebanon	961	00	0	7 to 8 digits	+2/+3
Lesotho	266	00	...	8 digits	+2
Liberia	231	00	...	7 to 8 digits	UTC
Libyan Arab Jamahriya	218	00	0	8 to 9 digits	+2
Liechtenstein	423	00	...	7 to 9 digits	+1/+2
Lithuania	370	00	0	8 digits	+2/+3
Luxembourg	352	00	...	4 to 11 digits	+1/+2
Macao, China	853	00	...	7 to 8 digits	+8
Madagascar	261	00	...	9 to 10 digits	+3
Malawi	265	00	...	7, 8 digits	+2
Malaysia	60	00	0	7 to 9 digits	+8
Maldives	960	00	...	7 digits	+5
Mali	223	00	...	8 digits	UTC
Malta	356	00	...	8 digits	+1/+2
Marshall Islands	692	011	1	7 digits	+12
Martinique	596	00	...	9 digits	-4
Mauritania	222	00	...	7 digits	UTC
Mauritius	230	00	...	7 digits	+4
Mayotte	269	...	...	...	+3
Mexico	52	00	01	10 digits	-6/-5
Micronesia	691	011	1	7 digits	+11
Moldova (Republic of)	373	00	0	8 digits	+2/+3
Monaco	377	00	...	5 to 9 digits	+1/+2
Mongolia	976	001	0	7 to 8 digits	+8
Montenegro	382	00	0	4 to 12 digits	+1/+2
Montserrat	1	011	1	(664)+7 digits	-4
Morocco	212	00	0	9 digits	UTC
Mozambique	258	00	...	8 to 9 digits	+2
Myanmar	95	00	0	7 to 9 digits	+6.30
Namibia	264	00	0	6 to 10 digits	+1/+2
Nauru	674	00	...	4, 7 digits	+12
Nepal	977	00	0	8 to 9 digits	+5.45
Netherlands	31	00	...	9 digits	+1/+2
Netherlands Antilles	599	00	...	6 to 8 digits	-4
New Caledonia	687	00	...	6 digits	+11
New Zealand	64	00	0	3 to 10 digits	+12/+13
Nicaragua	505	00	...	8 digits	-6
Niger	227	00	...	8 digits	+1
Nigeria	234	009	0	7 to 10 digits	+1
Niue	683	00	...	4 digits	-11
Northern Marianas	1	011	1	(670)+7 digits	+10
Norway	47	00	...	5, 8 digits	+1/+2
Oman	968	00	...	7 to 8 digits	+4
Pakistan	92	00	0	8 to 11 digits	+5
Palau	680	011	...	7 digits	+9
Panama	507	00	...	7, 8 digits	-5
Papua New Guinea	675	00	...	4 to 11 digits	+10
Paraguay	595	00	0	5 to 9 digits	-4/-3
Peru	51	00	0	8 to 11 digits	-5
Philippines	63	00	0	8 to 10 digits	+8
Poland	48	00	0	6 to 9 digits	+1/+2
Portugal	351	00	...	9, 11 digits	UTC/+1
Puerto Rico	1	011	1	(787/939)+7 digits	-4
Qatar	974	00	...	6, 7, 10 digits	+3
Reserved	970				
Romania	40	00	0	9 digits	+2/+3
Russian Federation	7	810	8	10 digits	+3/+4
Rwanda	250	00	...	9 digits	+2
Saint Helena	290	00	...	4 digits	UTC
Saint Kitts and Nevis	1	011	1	(869)+7 digits	-4
Saint Lucia	1	011	1	(758)+7 digits	-4
Saint Pierre and Miquelon	508	00	...	6 digits	-3/-2
Saint Vincent and the Grenadines	1	011	1	(784)+7 digits	-4
Samoa	685	0	...	3 to 7 digits	-11
San Marino	378	00	...	6 to 10 digits	+1/+2
Sao Tome and Principe	239	00	...	7 digits	UTC
Saudi Arabia	966	00	0	8 to 9 digits	+3
Senegal	221	00	...	9 digits	UTC
Serbia	381	00	0	4 to 12 digits	+1/+2
Seychelles	248	00	...	6 digits	+4
Sierra Leone	232	00	0	8 digits	UTC
Singapore	65	001.008	...	8 to 12 digits	+8
Slovakia	421	00	0	4 to 9 digits	+1/+2
Slovenia	386	00	0	8 digits	+1/+2
Solomon Islands	677	00	...	5 digits	+11
Somalia	252	00	...	5 to 8 digits	+3
South Africa	27	00	0	9 digits	+2
Spain	34	00	...	9 digits	+1/+2
Sri Lanka	94	00	0	9 digits	+5.30
Sudan	249	00	0	9 digits	+3
Suriname	597	00	0	6 to 7 digits	-3
Swaziland	268	00	...	7 to 8 digits	+2
Sweden	46	00	0	7 to 13 digits	+1/+2
Switzerland	41	00	0	4 to 12 digits	+1/+2
Syrian Arab Republic	963	00	0	8 to 10 digits	+2/+3
Taiwan, China	886	002	0	8 to 9 digits	+8
Tajikistan	992	810	8	9 digits	+5
Tanzania	255	000	0	9 digits	+3
Telecommunications for Disaster Relief (TDR)	888				
Thailand	66	001	0	8, 9 digits	+7
The Former Yugoslav Republic of Macedonia	389	00	0	8 digits	+1/+2
Timor-Leste	670	00	...	7 digits	+9
Togo	228	00	...	7 digits	UTC
Tokelau	690	00	...	4 digits	-10
Tonga	676	00	...	5, 7 digits	+13
Trial of a proposed new international service, shared code	991				
Trinidad and Tobago	1	011	1	(868)+7 digits	-4
Tristan da Cunha	290	00	...	4 digits	UTC
Tunisia	216	00	...	8 digits	+1
Turkey	90	00	0	10 digits	+2/+3
Turkmenistan	993	810	8	8 digits	+5
Turks and Caicos Islands	1	0	1	(649)+7 digits	-5/-4
Tuvalu	688	00	...	5, 6 digits	+12
Uganda	256	000	0	9 digits	+3
Ukraine	380	00	0	9 digits	+2/+3
United Arab Emirates	971	00	0	8 to 9 digits	+4
United Kingdom	44	00	0	7 to 10 digits	UTC/+1
United States	1	011	1	10 digits	-5/-4
United States Virgin Islands	1	011	1	(340)+7 digits	-4
Universal Personal Telecommunication (UPT)	878				
Uruguay	598	00	0	4 to 11 digits	-3/-2
Uzbekistan	998	810	8	9 digits	+5
Vanuatu	678	00	...	5, 7 digits	+11
Vatican	379	...			
Vatican	39	00	...	up to 11 digits	+1/+2
Venezuela (Bolivarian Republic of)	58	00	0	10 digits	-4.30
Viet Nam	84	00	0	7 to 10 digits	+7
Wallis and Futuna	681	00	...	6 digits	+12
Yemen	967	00	0	6 to 9 digits	+3
Zambia	260	00	0	9 digits	+2
Zimbabwe	263	00	0	5 to 9 digits	+2

Operating Instruction

Batterypack BP 1600
for Satellite Telephone SP 1600 B

⚠ hagenuk

Radiocommunications

Please read these instructions carefully as they contain information on how to considerably extend the service life of the 18 NiCad batteries.

Caution:
The battery pack is not charged when leaving factory. Charge it before use!

Normal mode with SP 1600 B Satphone

- Connect the battery cable from the battery pack to the battery socket on the SP 1600 B.

- The BATT.EMPTY indicator lights up briefly to show that the integrated electronics only switch through the battery power when the battery pack is connected to the Satphone.

- The SP 1600 B is now ready to operate.

- During operation, battery charge symbols 30%, 70%, 100% indicate the residual capacity.

- When the residual capacity drops below 30%, this indicator flashes and any current phone calls should be terminated. In this instance the remaining call time available would be a maximum of 10 minutes depending on the residual capacity of the battery.

- Once connected to an SP 1600 B which is switched on, the battery pack should be left switched on until the BATT. EMPTY indicator comes on.
The battery is now fully discharged and can be recharged.

- If the battery pack is not connected to the Satphone it automatically switches over to energy saving status. The residual capacity is shown at the touch of a button.

Charging from a DC source

- The battery should only be recharged after it has been fully discharged.
Connect the DC charging cable which comes with the battery pack to a DC source (e. g. 12 V or 24 V car battery, but watch the polarity) and to the DC charging socket. The unit operates in a voltage range of 10.8 V to 35 V.

red = +	black = -
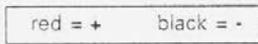
Polarity protection

- Switching poles during charging from a DC source would short out the internal fuse. Once this has been replaced the equipment is operational and no further damage will occur.

- Charging is monitored by a processor. It takes approximately 6 hours to charge the battery, and progress is indicated by battery charge symbols 30%, 70%, 100%.

The 100% symbol indicates that the charging process is now complete and the battery pack can be fully utilised again.
- When the battery is charged the charger switches to maintain charge. The battery pack can remain connected to the charger for several days but should then be disconnected from the power source.

Charging from the mains

- Connect the mains cable supplied with the battery pack to the mains and the socket on the battery pack.

- The charging process begins and proceeds as in **charging from a DC source**.
Depending on the local circumstances it may be necessary to use an adapter, which can generally be obtained from an electrical shop.

Further information

- The AC (mains) and DC (batt.) indicators should be constantly on during charging, otherwise no power is being supplied by the source.

- If the battery pack is not fully discharged, the integrated processor prevents further charging which is shown by the flashing 100% symbol. Should, under special circumstances, recharging be necessary, then this may be carried out by pressing the button.
Recharging should only be carried out on an occasional basis as it reduces the service life of the battery (memory effect).

- If the 100% symbol continues to flash when the button has been pressed, the battery cannot be recharged for one of the following reasons:
a) the ambient temperature is too low (less than 0°C)
b) the battery temperature is too high (more than 50°C)
c) excess voltage has been detected in one cell.

- If the temperature is too low the battery could be fully recharged within approximately two days the maintenance voltage which is still active.

- In the event of b) and c) it would be better to wait for a few hours before connecting the pack to the charging source (cool down).

General technical information

- The battery pack is only suitable for use with the SP 1600 B. The battery can only be recharged using the voltages indicated above. Higher voltages would immediately destroy the charger.

The permissible voltages are:
- *Charging with DC from batteries, solar panels or other DC sources with voltages from 10.8 V to 35 V.*

When charging from a DC source, please ensure that the internal resistance is sufficiently low, as there is a higher switch-on current when the charger is switched on.

For example, solar panels would have to be buffered by a battery.

- *Charging from the mains is possible from 90 V to 265 V.*

Rating:
Mains operation 35 W;
Battery operation 35 W.

- The battery pack has a no-
minal output of 21.6 V and a
5 Ah capacity.

Safety Information
- Never attach the SP 1600 B
connector to the charging
socket on the battery pack.
The charger can overheat and
simultaneously discharge the
battery.

- Keep the battery pack dry and
away from direct sunlight.

- Do not recharge the battery
and operate the SP 1600 B
using the battery pack at the
same time.

- If the housing is damaged do
not use the unit. Take it to an
electrical dealer for repair.

- Do not carry the battery pack
by the connecting cable.

- If after many hours of use the
battery becomes unservice-
able, do not throw it away
with normal domestic waste.
Take it to your dealer for
disposal, and if this is not
possible the unit should be
taken to a collection point for
hazardous waste.
*There are 18 NiCad cells
which contain cadmium.*

- Do not open the unit. This
should only be done by
qualified electricians.

- Whilst recharging voltages of
up to 400 V can occur in the
unit. All equipment connected
to the mains is dangerous
when opened.

Accessories
1 mains cable
1 DC cable
1 replacement fuse 1.25A in
the fuse holder
1 description

Technical data

Charging unit	90 V ... 260 V AC, 50 ... 60 Hz 10.8 V ... 35 V DC
Charging time	approx. 6 hours, after that trickle charge
Output voltage	nominal 21.6 V, short-circuit proof
Nominal capacity	5 Ah
Minimum discharging voltage	18 V, automatic switch-off when falling below
Temperature range	discharging -20° ... +55°C charging +5° ... +40°C
Dimensiones	222 x 240 x 60 mm
Weight	3.9 kg

Function of the LED displays
- *See right side ...*
- *Indications as shown beside
are only relevant under the
precondition that:*
*a) no charging voltage will be
supplied during discharging*
*b) no consumer is connected
during charging.*

○	LED off
◉	LED lights up
◐	LED flashes
⟨⟩	LED any state

DISCHARGING:

◉ ◐ ○ ○ ○ ○	Batterypack is discharged and switched off
○ ◐ ○ ○ ○ ○	Residual capacity below 30%
○ ◉ ○ ○ ○ ○	Residual capacity 30%
○ ○ ◉ ○ ○ ○	Residual capacity 70%
○ ○ ○ ◉ ○ ○	Batterypack is charged

CHARGING:

○ ◐ ○ ○ ○ ◉	Charging from mains, state <30%
○ ◐ ○ ○ ◉ ○	Charging from DC source, state <30%
○ ◉ ○ ○ ○ ◉	Charging from mains, state 30%
○ ◉ ○ ○ ◉ ○	Charging from DC source, state 30%
○ ○ ◉ ○ ○ ◉	Charging from mains, state 70%
○ ○ ◉ ○ ◉ ○	Charging from DC source, state 70%
○ ○ ○ ◉ ○ ◉	Charging from mains, state 100%
○ ○ ○ ◉ ◉ ○	Charging from DC source, state 100%
○ ⟨⟩ ⟨⟩ ◐ ○ ◉	AC voltage is supplied ***)
○ ⟨⟩ ⟨⟩ ◐ ◉ ○	DC voltage is supplied ***)

***)
The battery pack is not been
charged momentary because:
a) it was not sufficiently
discharged
b) the cell temperature is
higher 50°C or lower 0°C.
c) a cell voltage is higher 1,6 V

See also **Further information**

Operating Conditions

Receiving: minimum 140 minutes
Transmitting: 35 minutes

Requirement: Room temperature 21°C,
battery fully charged,
transmit power consumption 160W.

When charging from the AC mains, it is
important to use the supplied feeder lead,
otherwise no satisfactory operation can be
guaranteed!
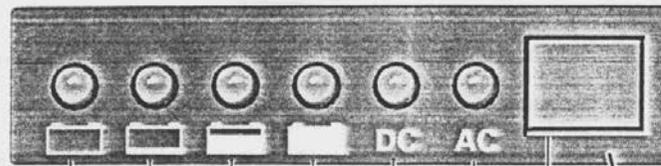
BATT.
EMPTY   30%   70%   100%

Charging
control
DC

Charging
control
AC

Push
button
key

BP 1600

110 ... 240V ±10% AC
mains socket
with internal
fuse 1.25A

10.8 ... 35 V DC
DC-charging socket
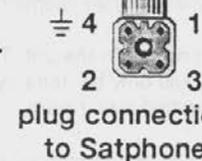
Attention:
Fuse 8A for DC cable is
inside plug connector

8 A

1 + 3 = +
2 + 4 = −

4   1
2   3

plug connection
to Satphone

BUNDESAMT FÜR ZULASSUNGEN IN DER TELEKOMMUNIKATION

ZULASSUNGSURKUNDE

Zulassungsnummer : A106145D

Objektbezeichnung: SP 1600 B

Zulassungsinhaber: Hagenuk GmbH
Westring 431-451
D-24118 Kiel

Zulassungsart : Allgemeinzulassung

Befristung : Die Zulassung ist befristet bis zum Inkrafttreten endgülti-
ger technischer Vorschriften für u.g. Objektart

Objektart : Funkanlagen für den Satellitenverteildienst (VSAT)

landmobile Sende/Empfangs-Funkanlage

Das Zulassungsobjekt wurde in Anlehnung an die Standards prETS 300 254 bzw.
EN 55022 -CSPR 22- hinsichtlich der Funkverträglichkeit geprüft.

Es hält die Grenzwerte der Grenzwertklasse B ein!

Das Zulassungsobjekt wurde nicht hinsichtlich der Anforderungen zum Anschluß an
öffentliche Telekommunikationsnetze geprüft.

Saarbrücken, den 07.12.93

Im Auftrag

Wiegand

1 Anlage

Bedingungen und Auflagen:

Die Bedingungen und Auflagen sind der "Verordnung über die Zulassung von Tele-
kommunikationseinrichtungen (TKZulV) vom September 1992 zu entnehmen.

Außerdem gilt:

1. Ein Abdruck dieses Bescheides ist an jedem Aufstellungsort der Funkanlage
bereit zu halten.

2. Die Geräte müssen den dem Bundesamt für Zulassungen in der Telekommunikation
(BZT) vorliegenden Unterlagen entsprechen.

3. Alle an die Funkanlage anschließbaren Zusatzgeräte müssen nach den VDE-
Richtlinien 0871 und 0877 Teil 1 Grenzwertklasse B funkentstört sein.

Hinweis

Diese Zulassung ist keine Genehmigung zur Errichtung und zum Betrieb der Funk-
anlage im Sinne des § 2 des Gesetzes über Fernmeldeanlagen (FAG).

Genehmigungen zum Betreiben dieser Funkanlagen erteilt das Bundesamt für Post
und Telekommunikation (BAPT).