

Rev. Date August 6 th 2001	Rev. C	Document no. 1522-QUAZ 911 903
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Technical Specification Saturn Bm		

Specifications subject to changes without notice

1. GENERAL

The Saturn Bm equipment is Inmarsat approved with Certificate Number 3EB002.
Saturn Bm1 provided with SW for "Leased Gateway" services (CN17) is Inmarsat approved with certificate No 3EB009.

2. LIST OF CONTENT

- Above Deck Unit (ADE) inc. Antenna /RF parts and Radome
- Main Control Unit (MCU)
- Display Handset (DH)
- Distress Alarm Box (DA Box)
- Documentation

3. STANDARD FUNCTIONS:

Duplex Voice 16 kb/s
Fax 9,5 kb/s Group III
Data 9,6 kb/s Asynchrony Data (ASD)

Storing the 10 latest number dialed (up to 20 digits)
Telephone book for 99 short numbers with alphanumeric names
Restricted Dialing
Restricted LES
Traffic Logging
Access Code
Charge Tone
Precharge minutes
Credit Card Phone

4. OPTIONAL FUNCTIONS

- Telex (50 Baud)
- Data 56/64 kb/s synchrony High Speed Data (HSD)
- Leas Gateway operation over 2nd and 3rd generation satellites (global beam)
- "BEST" mode operation
- Secure Interface Unit - STU-II B / STU III Interface (Comsat & Stratos version)

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5. OVERALL SIZE AND WEIGHT

Size	:	ADE (H) 1450 x (D) 1420 (mm)
		MCU (H) 70 x (W) 310 x (D) 236 (mm)
Weight	:	ADE 90 kg
		MCU 4 kg

6. HANDSET W/DISPLAY

- RJ-41 connector w/approx. 1,8 cable
- LCD display with 2 x 12 alphanumeric characters
- 12 pcs Number keys
- 12 pcs Functional keys allowing short number, changing LES etc.

7. CONNECTIONS (ADE)

7.1 Antenna Coaxial Connector

- 1 pc N-contact (female).
- This contact is feeding DC supply (28VDVC), RF signals (1,5 & 1,6 GHz) and the intercommunication between the MCU and ADE

8. CONNECTIONS (MCU)

8.1 Telephone / telefax Connectors

- 5 pc RJ-11 2-wire interface connectors (TEL 1 to TEL 5)
- 1 pc RJ-41 connector for Display Handset

8.2 ASD/HSD Data connector (DTE connector)

- for data communication, printer or software download.
- 1 pc 25 pins D-sub RS232 Connector for ASD and HSD service

8.3 Telex Connector (PC)

- 1 pc 9 pins D-sub RS232 Connector for connection to PC Telex

8.4 Printer

- 1 pc 9 pins D-sub RS232 Connector for connection to Serial Printer

8.5 Power connectors

- 1 pc DC input connector

8.6 Antenna Coaxial Connector

- TNC-contact (female) on the MCU.

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9. ELECTRICAL INTERFACE

9.1 2-wire Telephone/Telefax

Connector	:	RJ11
Line Impedance	:	600 ohm
Maximum line loop resistance	:	500 ohm (typical >1km)
Return loss	:	>14dB
Dialing function	:	Standard DTMF phone, cordless base station, PABX (Trunk lines) or fax machine
Dial tone	:	440 Hz -19 dBm
DTMF minimum	:	Dialing: -20dBm0
Speech level	:	+2.5 dBm
Receive level	:	-9 dBm
Line voltage	:	38V DC
Max line current	:	25mA
MES generated audible levels	:	-10 dBm0 +/-5dB
Ringing Tone	:	425 Hz +/-1Hz
Available Tone	:	800 Hz +/-1Hz
Ringing signal	:	46V RMS 25Hz (Max two telephones/faxes)
Hook ON / Hook OFF	:	Hook off: >20mA/Hook on: < 9mA

9.2 DTE Data interface

Data Protocol	:	Hayes AT compatible, including V25biz application
Bitrate	:	1.2 – 115,2 kb/s
Parity	:	Odd/even/mark/space)
Data Bits	:	7 or 8 bit)
Stop bit	:	1 or 2 stop bits)
Flow control	:	XON/XOFF or RTS/CTS

9.3 Telex (PC) Connection

9-pin RS-232 Serial Interface

9.4 Printer Connection

9-pin RS-232 Serial Interface

10. ANTENNA SEPARATION (MCU –ANTENNA)

Requirement for an optional cables : Maximum loss -12dB at 1.6 GHz, 0,6 ohm DC:

For all below listed Coaxial Cable a Pig-tail is required in each end.

<u>Cable Type</u>	<u>Max Length</u>
RG 214	24 m
RG 214U	28 m
Ethernet 062300	40 m

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S 12272-4	61 m
S10172B-11	75 m
Nokia 1/2"	92 m
Cellflex 7/8"	145 m
Cellflex 1 1/4"	175 m
Cellflex 1 5/8"	230 m

11. TECHNICAL PARAMETERS

11.1 Power Input

11.1.1 Power consumption

During Receive / Idle mode	:	Approx. 200 W
Transmit (during communication)	:	Approx. 300 W

11.1.2 DC input (to MCU)

Nominal 12 V / 24 V Battery (11VDC to 34 DCV)

11.1.3 AC Mains Input (to optional Power Supply)

115VAC / 230 VAC (90VAC to 276 VAC), 47-400 Hz

11.2 RF Parameters

11.2.1 G/T, EIRP

G/T	:	- 4 dBK
EIRP	:	33/25 dBW

11.2.2 Antenna

Antenna Gain	:	21 dBi
Beam with (at 3dB)	:	15°
Size	:	1 m diameter parabolic dish

11.2.3 Frequency

Type of operation	:	Single Channel Per Carrier (SCPC)
Transmitting	:	1626.5 to 1646.5 MHz
Receive	:	1525,0 to 1545.0 MHz
Channel space	:	20 kHz

11.2.4 Modulation / polarization

Modulation (signaling)	:	BPSK
Modulation (during communication)	:	0-QPSK
Polarization	:	Right Hand Circular Polarization

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11.2.5 Electromagnetic Compatibility

Radiation	:	EN55022 (August 1994) EN 60945 (Clause 9), January 1997
Conducted	:	EN 60945 (Clause 10) January 1997 EN 50082-2, August 1996

11.3 Safety distances

Compass safe distance	:	1 m from the steering compass (x) (x) British or Norwegian vessels
Microwave Radiation	:	Passengers should not be admitted in areas closer than 5 m (Based on 8W/m ²)

12. ENVIRONMENTAL PARAMETERS

“WheelMark” approval

Saturn Bm Mk2 Antenna Pedestal with Pedestal Model 3995-3 complies to “WheelMark” requirements.

Protection

Above Deck Unit	:	IP66
MCU & Handset	:	IP43.

Storage temperature : -50°C - +80°C

Operational temperature

<u>MCU</u>	:	-25°C - +55°C, 40°C 95 % humidity (non-condensing)
<u>Above Deck Unit</u>	:	-35°C - +55°C, 40°C 95% humidity, (non-condensing)
Infrared:	:	500 W/m ² ,
Ultra violet:	:	54 W/m ² ,
Visible:	:	1150 W/m ²
Wind	:	Relative average wind velocity up to maximum 150 km/h
Rain	:	100 mm/ hour
Ice	:	Up to 25 mm

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Robustness Survival :

Vibration	:	Vibration (1,05g RMS) in each of the three mutually perpendicular axes	5 - 20 Hz	0,02g ² /Hz
			20 - 150 Hz	- 3dB/octave
Shock	:	Drop 90cm		

Ships motion

Roll	:	+/- 30 °
Pitch	:	+/- 10 °
Yaw	:	+/- 8 °
Turning Rate	:	12 ° per seconds

13. OPTIONAL SERVICES

13.1 Lease Gateway (CN17)

Inmarsat offers a Lease Mode of operation for parties that want to establish close networks. Saturn B in Lease Mode offers same service as regular Inmarsat-B (Less Distress) over Lease Gateway satellites which are located at :

98 degrees West	Americas	(USA)
25 degrees East	Euro Middle East & Africa	(EMEA)
109 degrees East	Asian Pacific	(ASPAC)

No extra HW required. Re-registration and Opening Code is required.
Lease Mode operation must be agreed upon with the responsible Net service Provider.

13.2 External Modem operation

Enabling 32kbps to 128 kbps data service by use of external RF Interface and Modem.
Extra HW and Opening Code is required in addition to Lease Gateway service.

13.3 Dual Antenna Operation

Provides possibility for no-break transmission/reception during change over from one antenna (ADE) to the other. Extra HW and Opening Code is required.