

Inmarsat BGAN LVUT



■ Product Description

The Glocom's **GX-11** is a compact, economical Inmarsat BGAN land vehicular user terminal (Class 11 LVUT) designed to support a variety of broadband global area network services including IP packet data (up to 407 kbps in shared channel), Streaming (32, 64, and 128kbps), ISDN 3.1KHz audio for fax and secured voice, and low-rate AMBE telephony circuit-switched voice services. **GX-11** operates under the Inmarsat 4th generation satellites while vehicle is in motion. **GX-11** consists of two separate modules: ODU (Outdoor Unit) and IDU (Indoor Unit) and connected by a coaxial cable. The ODU features a helical antenna, a 2-axis stabilizer, a GPS receiver, and a front end RFU. The IDU contains an enhanced Class 11 core module with crystal oscillator durable for the vehicle shock/vibration environment, a wide-range (11 to 32 vdc) DC/DC Power Module and an Interface Module housed in a ruggedized chassis shock mount for desk top or rack installation. The **GX-11** antenna/stabilizer is shielded in a low-profile cylindrical dome roughly 15 cm in height and 28 cm in diameter.

■ Typical Applications

- IP packet data accessing web, email, corporate server/database, and VoIP
- PSTN telephony voice
- Compressed video via IP streaming (up to 128 kbps)
- Short messaging services (SMS)
- High quality audio (3.1khz ISDN)

■ Typical Users

- TV Mobile Station
- Mobile Command Center
- Border Patrol
- On-the-Road Telemedicine
- Remote Office Telecom Hub
- Military On-the-move (e.g. C3R2) Operations
- Long-distance Passenger Railway
- Expedition Vehicles
- Armored Vehicles
- Disaster Relief Mobile Center

■ GX-11 Product Uniqueness

- Industrial grade crystal oscillator with high G-sensitivity (0.7 ppb) durable for tough terrain or road conditions.
- Built-in wireless LAN for multiple workstations.
- Maximum safety distance between antenna and operator (up to 500 feet) for battle field fixed site applications.
- Multi-language man-machine interface on wireless PDA accessing built-in web server.



Inmarsat BGAN LVUT

■ Service Capabilities

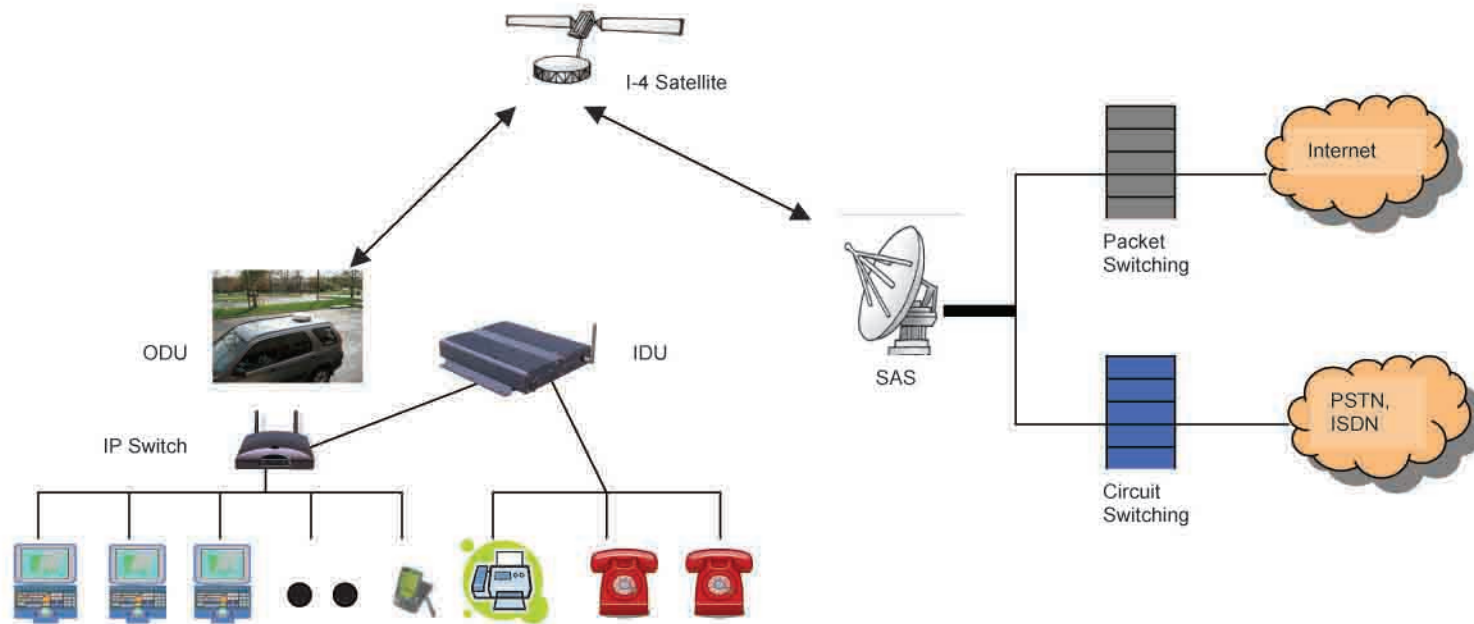
Circuit switched:

- Telephony: 4 kbps AMBE voice codec (PSTN)
3.1KHz audio (ISDN)

Packet switched:

- Broadband Streaming: 32, 64, or 128 kbps in reserved channel
- IP Data (Non QoS): Up to 407 kbps transmit and receive in shared channel
- Short Messaging (SMS)

■ BGAN System Overview



■ Physical Characteristics

Outdoor Unit (ODU)

- Housing: Fiberglass Dome
- Dimension: 276 mm (Diameter) x 150 mm (H)
- Weight: 1.86 kg
- Mounting: Bolt or Magnet
- Ingress Protection: IP55
- Components:
 - Antenna: 2-element Helix
 - RF Units: HPA, Diplexer, LNA
 - Stabilizer: 2-axis design with antenna control unit (ACU) for auto satellite tracking
 - 12-channel GPS receiver
 - Cable to IDU: RG-223 coaxial cable (5 m standard), TNC connector (male)

Indoor Console Unit (IDU)

- Housing: Aluminum alloyed
- Dimensions: 44 x 210 x 260 mm (H x W x D)
- Weight: 2.4 kg
- Mounting: Magnet Pads or Bolt with mounting brackets
- Ingress Protection: IP54
- Components:
 - Core module: BGAN Class 11 modem
 - Interface and Power module
 - Simcard
 - Wireless LAN antenna

■ Operational Characteristics

- Power supply: Wide-range DC Input (10.8 to 31.2 vdc) /120 watts
- Power consumption: Total 100W
- Transmit frequency: 1626.5 - 1660.5 MHz
- Transmit power at antenna: 14 dBW EIRP
- Receive frequency: 1525.0 - 1559.0 MHz
- Receive G/T: > - 15.5 dB/K

■ Environmental Characteristics

- Operating Temperature: -25° to +55°C
- Humidity: Up to 95% at 40°C
- Precipitation: Up to 100 mm/hr
- Wind Speed : Up to 200 km/hr relative
- Icing: Up to 25 mm (survival only)
- Vibration Operational: Random vibration of 1.05 g RMS in each of 3 perpendicular axes. Spectrum of vibration is 5 – 20 Hz: 0.02 g²/Hz, 20 – 150 Hz: -3dB/octave
- Vibration Survival: Random vibration of 1.7 g RMS in each of 3 perpendicular axes for 2 hours each. Spectrum at 5 – 20 Hz: 0.05 g²/Hz, 20 – 150 Hz: -3dB/octave
- Vehicle Motion:
 - Shock: 20g / 11ms half sine-wave shock
 - Velocity: 110 km/hr (vehicle) 200 km/hr (train)
 - Turning Rate: 40°/s

■ External Interfaces

Interface Type	Standard	Connector Type	Service Types
ISDN	Euro-ISDN S/T interface (ISO/IEC 8877:1992, ITU-T Recommendation I.430)	RJ-45	- 64kbps UDI - 3.1 kHz - HQ Speech
Ethernet	ISO/IEC 8877:1992, IEEE Std 802.3 1998 ed	RJ-45	- IP Packet Data
USB	Version 1.1 or later	Type-B Connector	- IP Packet Data
Voice	2-wire Analog	RJ-11	- 4 kbps AMBE voice; - ISDN 3.1KHz audio fax
Wireless LAN	IEEE 802.11b		- IP Packet Data
RS232	UART	DB-9	- System debug

■ GX-11 Standard Package

- Outdoor Antenna Unit (ODU) (1)
- Indoor Console Unit (IDU) (1)
- ODU/IDU Coaxial Cable 5m (1)
- Operating Manual CD (1)

■ GX-11 Optional Accessories

- IDU/ODU Coax Cable (LMR-600 92m)
- Wireless LAN PDA
- ODU Magnet Mounting Pad

■ GX-11 Certifications **CE: CE 1588** **FCC: XP4GLGX10**

EN 300 328	Electromagnetic compatibility and Radio spectrum Matters (ERM); Wideband transmission systems; Data transmission equipment operating in the 2,4 GHz ISM band and using wide band modulation techniques; Harmonized EN covering essential requirements under article 3.2 of the R&TTE Directive
EN 301 444	Satellite Earth Stations and Systems (SES); Harmonized EN for Land Mobile Earth Stations (LMES) Operating in the 1,5 GHz and 1,6 GHz Bands Providing Voice and/or Data Communications Covering Essential Requirements under Article 3.2 of the R&TTE Directive
EN 301 489-1	Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements
EN 301 489-17	ElectroMagnetic compatibility and Radio Spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific Conditions for 2,4 GHz Wideband Transmission Systems and 5 GHz High Performance RLAN Equipment
EN 301 489-20	Electromagnetic Compatibility and Radio Spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 20: Specific Conditions for Mobile Earth Stations (MES) Used in the Mobile Satellite Services (MSS)
EN 60950-1	Information technology equipment. Safety. General requirements
FCC Part 15	Radio Frequency Devices
FCC Part 15.247	Operation within the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850MHz.
FCC Part 25	Satellite Communications

■ GX-11 Inmarsat Type Approval Certificate: B11GC01

