SDR-4000
L-Band Software Defined Radio Terminal
with Inmarsat BGAN

Description
Establish on-demand broadband satellite communications virtually anywhere on the globe with the SDR-4000 L-Band Software Defined Radio Terminal. The terminal supports the Inmarsat Broadband Global Network (BGAN), the leading global, mobile commercial broadband satcom service available.

The SDR-4000 L-Band Software Defined Radio Terminal is a COTS platform that offers Beyond-Line-of-Sight (BLOS) communication and system interoperability with the ability to support multiple waveforms including BGAN, APCO P25, FM3TR, WNW OFDM PHY, and more. The SDR-4000 L-Band Software Defined Radio Terminal is fully software-reconfigurable, allowing development effort, cost and risk to be significantly reduced while minimizing and protecting hardware investment.

Key Benefits
- A fully software-defined commercial-off-the-shelf (COTS) platform that supports the Inmarsat BGAN Network
- Supports other SATCOM and terrestrial applications
- Allows for global, on-demand Beyond-Line-of-Sight (BLOS) communication with guaranteed data rates
- Reduce time-to-deployment using a fully configured COTS platform
- Substantially reduce waveform development and porting costs
- Improve system interoperability with a single terminal that supports several communications systems
- Easily integrate with external COTS and custom RF front ends through analog IF interface
- Reduce total cost of ownership by minimizing the need for hardware upgrades and allowing future updates in the field via software
- Other RF interfaces are available on the SDR-4000 platform including APCO P-25, WNW OFDM PHY, FM3TR, SINCgars, SRW EW PHY, and more

Target Applications
- Commercial Satellite Communications gateways, terminals and hubs
- Military Satellite Communications (MILSATCOM) gateways, terminals and hubs
- Tactical Military Communications (MILCOM) - ground vehicular, airborne, unmanned aerial vehicles (UAV), shipborne
- Satellite backhaul for public safety networks
- VSAT terminal and waveform development

Features
- Utilizes Xilinx® Virtex-4™, Texas Instruments TI DSP and Freescale™ general purpose processing technology
- Separate data path and control bus ideal for wireless modem applications requiring low latency deterministic operation
- External Serial (RS232/422), Gigabit Ethernet, and General Purpose I/O interfaces
- Inmarsat BGAN SDR Waveform is SCA v2.2.2 compliant
Specifications

Hardware

- **Frequency range**
  - Receive: 950-1750 MHz (L-Band)
  - Transmit: 950-1750 MHz (L-Band)

- **Antenna**
  - Type: External
  - Connector: BNC

- **Analog IF**
  - Frequency: 70 MHz IF (standard)
  - Connector: 1 RX (SSMC), 1 TX (SSMC)

- **Software reconfigurable modem**
  - Spectrum’s SDR-4021 Software-defined Radio Transceiver
  - For detailed specifications, please see SDR-4000 Value Starter Kit Datasheet

- **Power input**
  - Operating: 100/220VAC 60/50 Hz

- **Environmental**
  - Operating temperature: 0 to 40°C

- **Mechanical dimensions**
  - Rugged enclosure exterior: 70 cm (w) x 52 cm (h) x 93 cm (d)

- **Network interface**
  - Type: Gigabit Ethernet
  - Connector: 1 RJ-45

- **External host**
  - Windows Laptop (connected via ethernet)

- **Power input**
  - Operating: 100/220VAC 60/50 Hz

Software

- **Operating system**
  - GreenHills® INTEGRITY® RTOS

- **Development tools**
  - Xilinx ISE Foundation
  - Texas Instruments Code Composer Studio (DSP)
  - Green Hills® MULTI® (GPP)

- **Software communications architecture**
  - See future options section

- **Inmarsat BGAN specifications**
  - Data: Standard IP (TCP)
    - Variable bit rate service, up to 492 kbps (send & receive)
    - Guaranteed bit rate service, available on demand
      - UDP, ISDN support
  - Streaming: Guaranteed bit rate service
    - 32,64,128,256 kbps (send & receive)

- **Other external interfaces**
  - Serial: RS-232/422
  - Analog Input: BNC connector, 50 Ohms
  - SIM Card Reader: SmartBee 3,579 MHz Serial RS-232 Programmer

- **Processing**
  - GPP: MPC8541
  - FPGA: Virtex-4 SX55, LX60
  - DSP: C6416T

- **Future options**
  - SCA SCARI++ Core Framework
  - SCA Version 2.2.2
  - Ruggedization: Extended temperature range, shock and vibration

The Inmarsat BGAN SDR Waveform is supplied through GateHouse A/S.
For more details visit www.gatehouse.dk.