Satellite Gateway Unit (SGU)

The Satellite Gateway Unit (SGU) is useful to interface two different types of networks – LAN and synchronous serial communication over satellite. The SGU is a low-cost solution to transport IP/Ethernet frame over satellite network. It supports both unicast and multicast mode of communication. It can handle satellite channel signaling and conferencing call signaling that is useful in many SATCOM applications. All commercially available gadgets for packet-based data communication like – VoIP, Video phone etc., are having LAN interface, to introduce that equipment into satellite network, SGU required that efficiently converts the IP data format into a synchronous HDCL format and vice versa. It is having proper routing/ filtering mechanism to restrict unwanted traffic flows into the satellite link.

Satellite Gateway unit converts data between RS-422 to Ethernet. The unit is designed to work with internal clock or external clock selectable via jumper selection. The unit consists of total 8 communication channels and 1 control channel. The control channel is used to individually reset the communication channel via Ethernet port or via RS 485 port.

Front panel of 9-channel SGU

Back panel of 9-channel SG

Applications area

- MSS services Hub base band systems as a gateway between synchronous serial interface of satellite systems
  and IP based hub baseband systems
- VOIP phone over satellite network

Specifications:

No. of Communications Channels	:	8, can be configured independently
No. of M&C port/channel	:	1, can be configured independently
No of Processors per channels/m&c	:	1, RABBIT 6710 (total 9 processors)
Ethernet ports at Front panel per channel	:	1, 10/100 Ethernet RJ45 with Link and Activity Indicator
Ethernet Protocols supported	:	TCP, IP, UDP, RTP, HTTP
Communication Interface	:	RS422 synchronous (Tx data, Tx Clock, Rx Data, Rx clock)
Input Data Rate	:	2.4 Kbps to 384Kbps or higher
Clock selection	:	Internal, External, Selectable
Communication interface protocols	:	HDLC, Bi-sync, selectable
Communication Interface Connectors Back panel	:	9 PIN D type –male per channel
Communication LEDS	:	3 nos (RXD, TXD, link) per channel Front Panel
Operating System	:	Rabbit Bios
M&C interface	:	RS485 and RS232, selectable
M&C Interface connectors- Back Panel	:	9 PIN D type -female
M&C LEDS- Front Plate	:	3 nos. (RXD, TXD& link)

Push type master reset switch	: On Front Panel
Enclosure	: Standard 19”, standard 1U size,
Rack Mountable Cooling Fan	: 2, one as inlet and second as outlet
Power supply with EMI/RFI filter	: 230VAC with standard 3 pin Connector on Rear panel with Power supply cable
Power on/off switch – front panel	: Yes
Power indicator-front panel	: Yes
Temperature range	: 0 to +50 deg C
Humidity	: 5% to 95%, non-condensing

SGU is being used as a part of operational GSAT-6 MSS services Hub base band system for portable multimedia
services and satellite Mobile Radio services (two-way voice communication) at DES and at AES.

Technology Transfer from ISRO

ISRO is willing to offer the knowhow of this technology to suitable entrepreneurs / industries in India. Capable manufacturing industries interested in acquiring this knowhow may write with details of their present activities, requirements and plans for implementation, infrastructure and technical expertise available with them, their own market assessment, if any, and plans for diversification to the address given below: