ULTRA ELECTRONICS, GIGASAT is an industry leader for mobile and flyaway satellite earth stations and microwave links with a focus on wireless broadband communications as the core technology. Formally the Giga-Group, the company was formed in 2001 and acquired by Ultra Electronics in 2012.

The business has won several prestigious awards including the Queens Award for Industry in 2005 & 2012 and a European Space Agency award for Research and Development in 2006.

The UK Headquarters is in a 3,066m² (33,000 sq. ft.) building situated in Tring, Hertfordshire, about 50kms NW London, close to two of London’s airports and a main line train station.

Where on site support is required our international team of commissioning, servicing and training engineers can be called upon to assist on any continent.

Anywhere in Europe is a short plane ride away.

Supporting an impressive customer list of multiple International MODs and including the BBC, CNN, and Al Jazeera, GigaSat has the technical resources to undertake virtually any ground based satellite communications project.

MIL-STD-810 certified and WGS/DSCS approved antennas and systems available.

The majority of parts, including carbon fibre, are manufactured in the factory / HQ in Tring, United Kingdom.

GigaSat does not just supply antennas. The majority of sales are for complete, fully integrated terminals comprising Antenna, HPA, Upconverter, Encoder/Modulator & IRD supplied in carbon fibre flight cases.

GigaSat’s experience includes large fixed teleports, flyaway terminals for military and commercial broadcast applications, vehicle based uplinks with fully integrated multiple camera outside broadcast facilities and VSAT data networks.

In addition to hardware integration GigaSat is also able to offer bespoke software for comprehensive monitoring and control.

Ultra Electronics, GigaSat is an ISO-9001 company.

Skynet and XTAR certified terminals are available.
FLYAWAY SYSTEMS

GigaSat is a UK designer, manufacturer and integrator of specialist satellite systems, and as such has control over the performance and specification of its products, enabling it to respond to customer requirements with new designs in a short time.

This capability has resulted in some unique systems for the satellite industry, including the world's first 3.7m true flyaway system, deployed around the world where large transportable C-band systems are needed, but a trailer mounted solution is too cumbersome, or where the ability to deploy systems on rooftops for safety reasons, or disaster recovery applications is important.

At the other end of the scale, GigaSat manufactures a 1.0m antenna, which packs into three compact soft pack cases making it ideal for transport by helicopter or light aircraft and with each case weighing around 10kg it is considerably below the maximum weight limits imposed by commercial airlines for checked baggage.

GigaSat flyaway antennas are now supplied in large numbers for defence applications being specified for their compact size and weight, durability, reliability and the fact that they are WGS certified and MIL-STD-810 certified.

GigaSat systems are engineered to withstand the harsh environments associated with Military operations and Satellite News Gathering. GigaSat flyaway systems are specifically designed from the ground-up for in-field operation.

They are manufactured from components specified for extended temperature ranges, they are ruggedised and they are weatherproof

- 1.0m terminal suitable for X, Ku, K or Ka-band transmissions.
  Very light weight carbon fibre construction with motorised mount.
  Basic system packs into 1 case weighing less than 19kgs.
  Nominal 57.7dBW EIRP and 18.6dB/K G/T in Ku-band.

- The 1.2m antenna based system is suitable for X, Ku, K or Ka-band transmissions.
  Unique reflector design using the "Matroyshka" principal for minimum packed dimensions.
  System packs in 3 cases each weighing less than 23kgs.
  Nominal EIRP of >63dBW and G/T in excess of 20.5dB/K in Ku-band.

- 1.8m antenna based system for high power in all bands from C to Ka.
  Highly versatile system truly capable of transmission on virtually any commercial satellite from anywhere in the world.
  MIL-STD-810 certified antenna. Single thread system typically packs into 4 easily carried cases.
  Typically > 70dBW EIRP and G/T of 23dB/K in Ku-band.

- 2.4m antenna based system for high power in all bands from C to Ka.
  Similar to 1.8m systems but with nearly 2.5dB extra gain, especially suitable for C-band use.
  Single thread system typically packs into 4 easily carried cases
  WGS certified X-band and Ka-band systems and MIL-STD-810G certified antenna.
  Typically >73dBW EIRP and G/T of 25dB/K in Ku-band.

- 3.7m antenna based system (world first) for very high EIRP in all bands from C to Ka.
  WGS certified X-band and Ka-band systems.
  Typically packs into 6 or 7 manhandle able flight cases depending on baseband configuration.
  Typically up to 80dBW+ EIRP and G/T of 30dB/K in Ku-band makes this system ideal for any high data rate application such as broadband data up to 45Mbps or a complete bouquet of video channels.
**MAN-PACK TERMINALS**

GigaSat offers a range of man-pack terminals with antennas from 0.23 to 1.3m (parabolic equivalent), suitable for X, Ku, or Ka-band transmissions.

Some of the terminal are flat panels, whilst the remainder feature centre fed or offset Gregorian parabolic antennas.

The terminals either accept an internal modem, sourced from a number of vendors, or an external modem.

The manual terminals feature a simple pointing system using a highly intuitive Graphical User Interface to peak the antenna onto the chosen satellite.

The motorised terminals (FA-100 and FA-130) feature one-button auto deploy.

- 8” x 8” (0.23m) flat panel (optional 8” x 16”).
  - System packs in one box weighing 10kgs (22lbs).
  - Typically integrated with integral BUC and modem for nominal 42dBW (Linear) EIRP and 11.3dB/K G/T in Ka-band.

- 27” x 16” Gregorian Offset Antenna
  - System packs into one box weighing less than 22lbs (10kgs)
  - Integral BUC and modem for nominal 54.7dBW (Linear) EIRP and 18.6dB/K G/T in Ka-band.

- 1.0m Centre Fed Antenna
  - Terminal weighs 19kgs (42lbs)
  - Typically integrated with integral BUC and modem for nominal 58.1dBW (Linear) EIRP and 21.1dB/K G/T in Ka-band.

- 1.3m Centre Fed Antenna
  - Antenna & BUC are packed in two cases weighing a total of 84kgs (185lbs)
  - Typically integrated with integral BUC and separate modem for nominal 60.5dBW (Linear) EIRP and 23.0dB/K G/T in Ka-band.
GigaSat offers a range of drive-away systems with antennas at 1.0m, 1.5m, 1.8m and 2.4m suitable for C, X, Ku, K or Ka-band transmissions and all incorporate quick release cartridge feed arrangements for multi-band operation when required.

Size for size the GigaSat carbon fibre antennas are lighter, more aerodynamic and more rugged than any comparable product.

The DA antennas comprise a carbon fibre monocoque construction, which provides an aerodynamic environmental shelter for outdoor equipment.

The drive-away pod is designed to accommodate the HPAs and upconverters, which brings a number of advantages over conventional vehicle mount antennas, such as reduced waveguide loss for increased available power, extra space inside the vehicle and removal of noise and heat from inside the vehicle, not forgetting the added convenience of simple L-band and control interconnections during installation.

Typically integrated onto broadcast industry standard trucks, DA-series antennas are used extensively by the media industry and the rugged design continues to win new business with government and military organisations around the world.

Whether a customer requirement is an antenna only with fully automatic antenna control system, or a fully integrated uplink, ready for third party installation, or a turnkey comprehensively equipped specialist vehicle, GigaSat is ready to provide the solution.

### Driveaway Systems

- **1.0m Driveaway system suitable for X, Ku, K, or Ka-band transmissions.**
  - Easily transported and de-rigged from one vehicle to another for fly/drive applications.
  - Typically integrated with SSPA up to 100W or TWTA up to 200W for 63dBW EIRP and 18dB/K G/T in Ku-band.

- **1.5m Driveaway antenna based system for high power in all bands.**
  - Quick release feed for multi band use.
  - Antenna pod houses single or dual (1+1) HPAs up to 400W.
  - Typically >69dBW EIRP and G/T of 22dB/K in Ku-band.

- **1.8m Driveaway antenna based system for high power in all bands from C to Ka.**
  - Quick release feed for multi band use.
  - Antenna pod houses single or dual (1+1) HPAs up to 750W.
  - Typically >71dBW EIRP and G/T of 23dB/K in Ku-band.

- **DA-180 & 200 Lite - Lightweight Antenna.**
  - 1.8m & 2.0m Driveaway antenna based system.
  - Antenna arm houses single or dual (1+1) HPAs up to 14kgs.
  - Optional cradle houses single or dual (1+1) HPAs up to 400W
  - Typically >67dBW EIRP and G/T of 22.4dB/K in Ku-band.

- **2.4m Driveaway antenna based system for highest power in all bands from C to Ka.**
  - Quick release feed for multi band use.
  - Automatically folding ears and ultra light weight allows installation on small vehicles such as Mercedes Sprinter.
  - Antenna pod houses single or dual (1+1) HPAs up to 750W.
  - Typically >74dBW EIRP and G/T of 26dB/K in Ku-band
FIXED SYSTEMS AND ELECTRONICS

Extending its engineering skills base to fixed earth stations, GigaSat can install, integrate and commission any fixed antenna from <1.0m to >13m.

One of the key features of the smaller antennas is the speed of assembly, which allows on-site work to be kept to a minimum and enables the start of service to be very soon after arrival on site.

GigaSat has qualified its fixed antennas with virtually every satellite operator. GigaSat has a team of Engineers and Technicians familiar with installations in many locations around the world and can easily adapt the system for the local conditions and perform the installation work required to offer full turnkey services.

GigaSat also offers a range of their own Electronics products from Frequency Converters to Antenna Controllers and Redundancy Controllers.

- **Small VSAT Antennas**
  - The smaller VSAT antennas are ideal for use in VSAT networks, particularly where ease of transportation and installation are important. Available in all frequency bands, motorised or manual and with a choice of permanent or non-penetrating mount.

- **Larger VSAT Antennas**
  - The larger fixed antennas are compliant with all commercial satellite regulations. Ideal for all fixed earth station applications. Available in all frequency bands, with a full range of options including motorisation and with a choice of permanent or non-penetrating mount.

- **Antenna Controllers**
  - Hand-held, half-rack width or full 19’ antenna controllers for use with fixed, driveaway or flyaway antennas. Available for jog control or with sophisticated auto pointing, acquiring and tracking capabilities with integral beacon receiver.

- **Frequency Converters**
  - A range of frequency converters for single or multi-band applications. Available as weatherproof fixed conversion BUCs/BDCs or fully synthesised with front panel frequency programming. All IESS/308/309 compliant.

- **System Controllers**
  - The RFS series system controller allows full functional control of most TWT and SSPA amplifiers with front panel readout of power etc. whilst providing comprehensive redundancy switching of up to 5 stages of the uplink chain.

- **Bantam Packages**
  - GigaSat was the first to offer half 19” packaging for its flyway systems and all system electronics can be supplied in standard width or compact half-width construction to suit this format.
SYSTEM COMPONENTS

GigaSat can provide single band to quad-band packages of amplifiers and upconverters.

All FA antenna feed arms are equipped for Quad-band operation.

Bands can be changed, without any tools, in a matter of minutes.

Single-Band Amplifier package

The amplifier package can be TWT or Solid-state. It is, typically, packed for travelling in a hard case and removed and deployed for operation. With a redundant package, the two amplifiers are connected by waveguides to a redundancy switch, controlled by the GigaSat RFS.

Dual-Band Amplifier package

The rack-mount dual-band amplifier is mounted in one flight case, whilst all of the filtering and upconversion, from L-band, is mounted in a second flight case.

Cross-site Multiplexing and Frequency conversion

The Cross-Site Multiplexer (CSM) multiplexes the RS485 control signals and, if required, an Engineering Order Wire (EOW) onto the L-band cross-site cable. A second CSM, at the remote end, extracts the RS485 and EOW. The image shows a Ka-band amplifier with a L-band to Ka-band converter, with CSM.

Cross-site Cables

Cross-site cables are normally supplied as a 50m drum with the relevant tails. The cables can be cascaded by adding a line-amplifying cable drum every other cable. This system has been proven up to 300m cross-site and, theoretically, should operate to 500m.

Baseband Electronics

Encoders and/or modems are usually supplied in a custom carbon-fibre flight case. Example shown is a 6U flight case with STC Antenna controller, two encoders (1+1), IRD and modem.

Control and Monitoring

CAM is a flexible Windows based remote control and monitoring system designed for use with GigaSat fixed, mobile or flyaway earth stations and can be configured for operation with any other remotely controllable equipment or system. This licenced software is usually supplied loaded on a laptop computer.