



Ground Station & Software

GAUSS offers support for in-orbit operations via its fully automated ground station based in Rome.

The ground station is designed for VHF & UHF (uplink & downlink) and S-Band (downlink).

It can be interfaced via Internet using TCP/IP communications to let customers interface remotely with their own satellite, in a fully transparent way.

The ground station will handle, on its own, the antenna pointing and radio Doppler configurations.

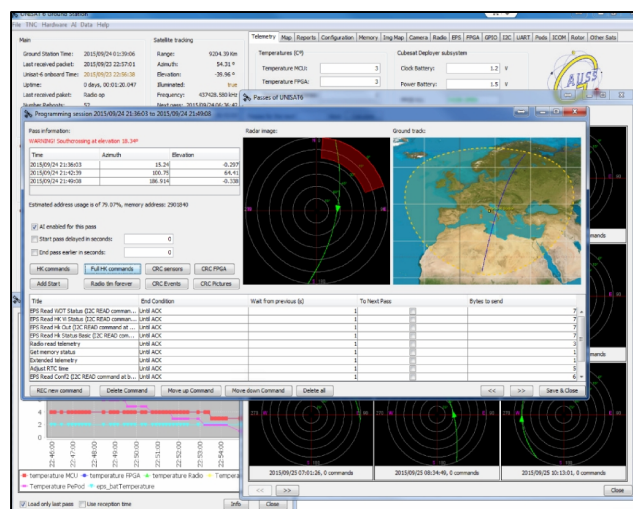


Support, Hardware & Software KIT

GAUSS offers **consultancy** and **entire kits** in order to design and build your own ground station, as it has gained a broad experience after several years of ground stations design, development and operations for micro and nano satellites.



GAUSS offers **customized software** to fully automate your ground station, based on your hardware needs: the software and its pseudo **Artificial Intelligence** are developed in order to be fully integrated with the specific customer mission.



Hardware Features

- **High gain Yagi-Uda VHF and UHF Antennas** (>16 dBi for UHF);
- Low-noise amplifiers and band-pass filters for VHF and UHF bands;
- **Low-loss RF coaxial cables**;
- **1.5m parabolic dish** for higher frequencies downlink (up to 6GHz, default feed is for S-band);
- **VHF**: Uplink and Downlink up to **100W** using radio and TNC, SDR optional;
- **UHF**: Uplink and Downlink up to **70W**, using radio and TNC, SDR optional;
- TX using **ICOM-9100** hardware, RX recording and decoding via SDR;
- Several **RF and electrical fuses** for lightning protection;
- **S-Band**: Downlink using SDR for recording and post-processing of I/Q RF data;
- **Az/El rotor** for high-torque maneuvering;
- **Hardware components power switch on/off** to minimize power consumption;



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Group of Astrodynamics for the Use of Space Systems

- **Full HD Camera** for instant antenna monitoring and picture logging.

Software Features

- **Automatic TLE Download** from publicly available repositories;
- **SGP4 propagator** as suggested by USAF NORAD's Space-Track;
- **Rotor Control** (*compatibility with several rotor controllers, e.g. Yaesu, RF Hamdesign*);
- **Assisted rotor pointing calibration and verification** using Sun position;
- Fully compatible with **ICOM-9100** satellite radio and **GAUSS USB Ground Dongle**;
- **Separated Doppler shift corrections** for uplink and downlink frequencies;
- **DUPLEX TX/RX mode**;
- **Instant weather check** and logging, in order to operate the ground station safely;
- **Lightning detection** for safe antennas operation;
- **Instant logging** of all subsystems operation;
- **Ground map with live Earth clouds**;
- Compatible with **several TNCs** (*Kantronics, Symek, Paccomm, Kenwood*);
- **Email report** to ground station operators;
- **Instant email alerts** for non-nominal conditions of the satellite or GS hardware components;
- **Session programming** for weeks of **unattended ground station operations**;
- **GUI Command recording** for easy session programming;

- **One button programming** to include a whole set of commands in the session;
- **Manual override** during pass for last-minute command addition;
- **Control and handling of multiple satellites** using configurable priorities;
- **Satellite TLM decoding, graphing and archiving** into a database accessible by web;
- **Integrated satellite payload data handling and decoding** (e.g. for image file processing);
- **TCP/IP connections for remote ground station & TNC operations.**

