

icIGS | INTEGRATED FIELD-DEPLOYABLE GROUND STATION

Ingenicomm's icIGS integrated field-deployable ground station represents the next generation of turn-key solutions for low-cost, ruggedized satellite communications and mission operations. The icIGS is a portable system that integrates radio interfaces, baseband processing components, and mission operations software to provide end-to-end satellite operation capability. The icIGS is compatible with a variety of fixed and mobile antennas, and can be provided as a package with a rapid-deployment antenna if required.

High-Performance Radio Interface

The icIGS utilizes a highly configurable, fully software defined Ettus Research™ Universal Software Radio Peripheral (USRP™) to provide high-performance downlink demodulation and uplink modulation capabilities for RF and IF signals at frequencies ranging from DC to 6 GHz. The radio can be configured with serial input and output interfaces for use as test points or for direct injection of uplink data, and is equipped with one of several high-power amplifiers for direct-to-antenna transmission.

Flexible Baseband Processing

The icIGS incorporates Ingenicomm's best-selling Configurable Ground Systems (CGS) data processing software. CGS delivers high-performance, user-configurable telemetry and command encoding, processing, and demodulation capabilities, with integrated archiving and data distribution, data quality metrics, and built-in simulation and self-test features available.

Multi-Spacecraft Mission Operations

The icIGS includes the COSMOS mission operations framework to provide a comprehensive set of mission operations and management capability, including orbit determination and contact planning, activity scheduling, spacecraft command translation and sequencing, and telemetry monitoring and display. COSMOS supports both single-spacecraft operations and multi-spacecraft fleets, with integrated conflict resolution and contact opportunity determination.

GIS and Scientific Product Analysis

The icIGS can be upgraded with a range of integrated analysis tools for GIS and scientific products. The tools are fully integrated with the data processing and mission operations platform for ease of use.

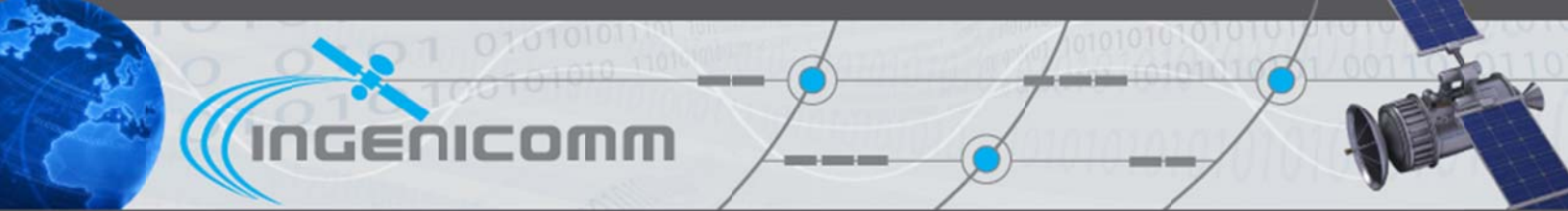


Key Features

- High-performance telemetry demodulation solution for ingest data rates up to 1.5 Gbps
- Database-driven real-time telemetry point extraction and engineering unit conversion
- Multi-channel telemetry packaging and distribution via file transfer or real-time propagation
- Fully configurable real-time telemetry displays with analog gauges, charts, and alpha-numeric displays
- Configurable telemetry value constraints and limit/alarm conditions



Ingenicomm, Inc. is a leading provider of ground and range equipment and enterprise engineering services for civil and commercial aerospace programs, as well as the defense and intelligence communities. To learn more about Ingenicomm's service and product offerings, visit <http://www.ingenicomm.net> or contact Ingenicomm at info@ingenicomm.net or +1-703-943-7236.



System Capabilities

Input and Output Interfaces

- RF or IF analog uplink and downlink
- TTL, RS-422, or ECL serial baseband I/O
- Gigabit Ethernet network I/O

Demodulation and Decoding

- BPSK, QPSK, and OQPSK demodulation
- Reed-Solomon, Viterbi, and LDPC encoding and decoding
- Fixed-frame, ASM, and HDLC stream framing

Telemetry Processing

- CCSDS Conventional (version 1) and AOS (version 2) telemetry and telecommand transfer frames
- TDM major/minor frames and custom frame/header formats
- CCSDS space packets
- Encapsulated direct-to-vehicle IP communications
- XTCE- and database-defined telemetry field extraction
- Integrated decommutation and engineering unit conversion
- Integrated FTP, CFDP, and NORM file transfer extraction

Test Data Generation

- Fully configurable PRBS generation and verification
- Fixed and user-provided pattern generation and verification
- Single- and multi-bit burst error simulation
- Bit and packet error rate calculation

Data Archiving and Playback

- Heuristic data presence detection and automated recording
- Segmented and multi-file recording and playback
- Automatic time-tagging and aging of recorded files
- Data search and playback via session names, timestamps, or data/metadata characteristics
- Automated and interactive file transfer via FTP/SFTP, SMB, and HTTP

Telemetry Displays

- Fully configurable per-user and shared display layouts
- Analog and digital gauges and dials
- Strip, bar, line, and pie charts
- Variable-format alpha-numeric displays
- User-configurable constraints and limit conditions
- User-configurable real-time alarms

Mission Operations

- Orbit determination and propagation
- Ground contact scheduling
- Command translation and sequencing
- Single- and multi-spacecraft operation



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