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PRODUCT *GUIDE*

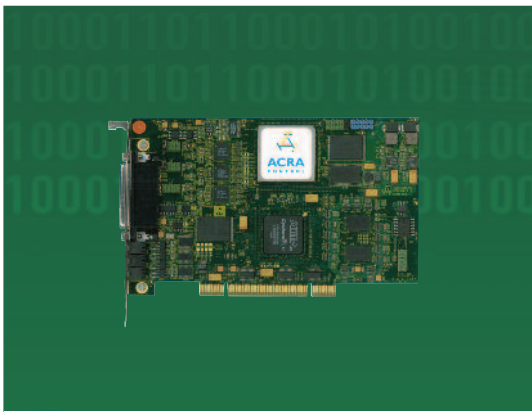
GROUND STATIONS

GTS-500

Integrated systems with superior BER performance









LEADERS IN AIRBORNE DATA ACQUISITION AND PROCESSING

ACRA CONTROL
A Curtiss-Wright Company

GROUND STATIONS

About ACRA CONTROL

ACRA CONTROL is a world leading supplier of airborne data acquisition networks and recording systems and real-time data processing ground stations to the aerospace industry. With two decades of experience, our reputation is built on reliable and innovative COTS products – a result of sustained investment in R&D and engineering expertise. This combined with AS9100 quality processes and strong program management ensures top class capabilities in aerospace projects of any size. ACRA CONTROL's customers include all of the major aerospace prime contractors and test agencies with products supplied to over 300 platforms in 40 countries worldwide.

The ACRA CONTROL Difference

ACRA CONTROL provides sophisticated ground station systems based on cutting edge bit synchronizer, Smart Source Selector and decommutator technology. The resulting systems significantly improve signal reception and increase data throughput.

These systems are specifically tailored to meet the demanding needs of real-time applications, leveraging ACRA CONTROL's heritage in designing flight test solutions. The telemetry ground stations offer an end to end solution from receiver to processed data with tightly integrated hardware and software. GS Studio setup and management software facilitates quick and easy configuration changes. GS Works is the advanced real-time/post processing analysis software (powered by IADS® technology) that completes the ground station solution. It has a host of features that allows displays, data and analysis techniques to be built, tested and saved with little effort at any time before or during the mission.

Applications

- *Mobile Telemetry Ground Stations*
- *Real-Time and Post-Flight Test*
- *Flight-line Checkout*
- *Launch Control System*
- *Incident / Accident Analysis*
- *Range Alarming / Range Safety*



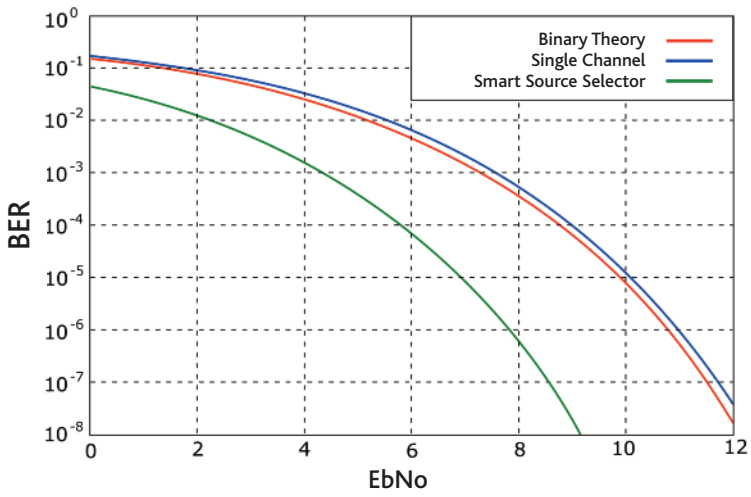
Leading Technology

ACRA CONTROL's ground stations use leading edge bit synchronizers coupled with Smart Source Selector technology to yield best in class bit error rates. The 100% digital design reduces the effects of temperature and noise that are normally inherent to analog systems and produces the same performance at all rates and for all codes.

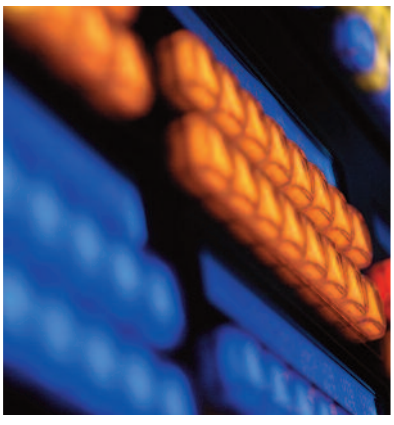
The bit synchronizer's programmable matched filtering and inter-symbol interference compensation reconstruct a serial PCM data stream to a BER within 0.25dB of theory. Combined with Smart Source Selector technology, ACRA CONTROL's dual-channel ground station systems achieve a possible BER of 3dB better than theory when using a pair of diverse receivers (spatial, polar or frequency).

Smart Source Selector technology outperforms diversity combiners and simple best data selectors by offering a previously unavailable alternative. Signal to noise metrics are used to decide which channels contain constructive data. The selected data streams are then aligned using large buffers to compensate for variable delays and combined using soft-bit metrics on a bit by bit basis. This innovative Smart Source Selector technology also supports the use of encrypted data.

Reconstructed data is decommutated into minor frames which are time tagged using an IRIG-B source. The PCM decom supports variable word length, parity and bit orientation per word and all standard PCM codes.



BER improvement possible using a dual channel Smart Source Selector



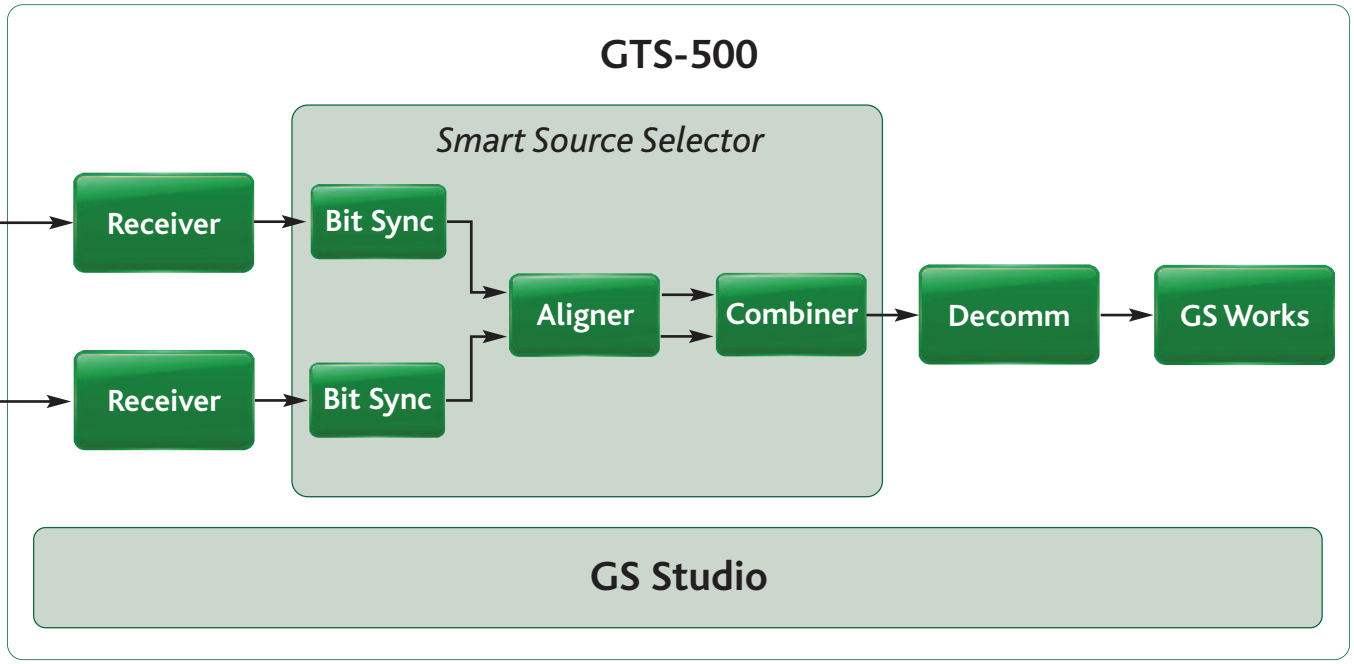


GROUND STATIONS

GTS-500 Ground Station

The GTS-500 ground station has two 20Mbps L/E Band receivers, a dual channel Smart Source Selector and PCM decommutator. The 4U rack mountable system features an Intel Core 2 Quad 2.66GHz processor, 4GB DDR2/800 memory, two 500GB removable hard disks and a powerful graphics card set-up to drive multiple displays. This system works in tandem with powerful software - GS Studio provides simple and intuitive setup while GS Works provides industry leading data analysis.





Custom Configuration Options

The GTS-500 ground station can be customized with a number of ACRA CONTROL COTS products to better suit a particular application. The custom options can alter the GTS-500 ground station system to perform many different roles including a dedicated decommutator or a multi channel bit synchronizer. All the applicable technological benefits are realized using the same proven platform. For details on the available options, please see the product selection guide page.

GTS-500 Lunchbox PC Option

For mobile applications the rugged portable GTS-500 lunchbox PC option is ideal. It is a multi-platform workstation that puts cutting edge computing power inside a compact enclosure. The aluminum alloy chassis is reinforced with rubber bumpers to withstand service in demanding field conditions. It also features an integrated LCD monitor, fold-down keyboard and speakers. Like the GTS-500 ground station, it can be customized to suit a particular task using the same COTS products.



Related Products

RUGGED TOUGHBOOK PC

The rugged toughbook is ideal for applications requiring a portable PC in harsh conditions. It is constructed using an ultra strong magnesium alloy case, is vibration and shock resistant to MIL-STD 810, water resistant to IP54-standards and operational down to temperatures of –20°C.



NOTEBOOK PC

This notebook is engineered for reliability and productivity and has been tested to ensure it can configure ACRA CONTROL's hardware. It combines great design and cutting edge performance and is ideal for power hungry computing on the move.



GTS/BAY/001

The GTS/BAY is a SATA SSD cartridge bay housing that is easily installed in any standard desktop PC. It allows SSDs cartridges from ACRA CONTROL's NET-500 and SSR-500 range of recorders to be plugged directly into a post-processing ground station.



Concept:

EIGHT-CHANNEL SMART SOURCE SELECTOR

The Smart Source Selector technology is available with additional channel configurations where the program merits the customization of COTS technology and the schedule can accommodate the corresponding lead-times. For example, the GTS/SSS/001 concept is an eight channel Smart Source Selector. It extends the benefits of the GTS-500 ground station to yield a possible BER improvement of up to 9dB better than theory in practical applications.

ACRA CONTROL Online

The ACRA CONTROL website has a membership area with detailed data sheets for all our products along with a host of other features. These include an interactive analog module selection guide, video tutorials, FAQs and Application Support Notes. Members can download technical papers presented at conferences, ACRAscope company newsletters, case studies, technical focus articles and access details about upcoming exhibitions and conferences.

www.acracontrol.com

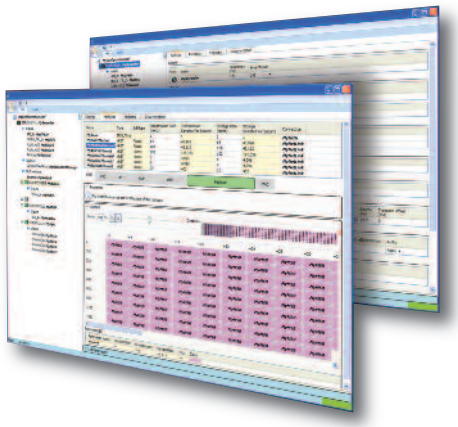
GROUND STATIONS

Setup and Analysis Software

ACRA CONTROL's setup and analysis software products have been specifically designed for flight test applications to provide a powerful integrated solution that saves time and money.

GS Studio

GS Studio is used to configure and manage ACRA CONTROL ground stations. Its intuitive user interface ensures any required configuration changes are quick and easy to implement. The software features dynamic error checking, a one click system discovery tool and integrated programming. GS Studio uses XidML, an XML metadata standard for the aerospace community, which provides a vendor-neutral hardware configuration platform. This open standards philosophy facilitates device interoperability, iNET compliance and frees the end user from proprietary hardware and software products.





GS Works



GS Works is the real-time and post-test display and analysis software suite (powered by IADS® technology) that has been designed from the ground up to meet the needs of the flight test community. Customers are assured of quality data as it is tightly integrated with ACRA CONTROL's GTS-500 ground station systems. It utilizes multi core capabilities with a multi-threaded architecture for maximum efficiency and is scalable from a laptop to a large workgroup through its Client/Server software architecture. Every data point is cached to disk allowing immediate scroll back through the time history – no data is ever lost, it continues to be stored in real-time and can be instantly transferred to another analysis workstation. An interactive interface lets users create customized displays in seconds that can contain multiple windows arranged into different desktop groups and sent to multiple monitors via multi-port graphics processors or Ethernet. The same features are available for real-time and post-test processing such as building equations and ActiveX controls and analyzing time and frequency-domain data.

Product Selection Guide

Systems

GTS/SYS/005	GTS-500 telemetry ground station system with receivers, dual channel Smart Source Selector, PCM decommutator, GPS/IRIG time reference, GS Studio and GS Works

PCI Cards

Smart Source Selectors	
GTS/BSC/004	Dual channel 20Mbps Smart Source Selector PCI card
GTS/DEC/004	Dual channel 20Mbps Smart Source Selector and PCM Decommutator PCI card
Bit Synchronizers	
GTS/BSC/003	20Mbps bit synchronizer PCI card
GTS/DEC/003	20Mbps bit synchronizer and PCM decommutator PCI card
GTS/BSC/005	Dual channel 20Mbps bit synchronizer PCI card
GTS/DEC/005	Dual channel 20Mbps bit synchronizer and PCM decommutator PCI card
PCM Decommutators	
GTS/FSC/003	20Mbps PCM decommutator PCI card
GTS/FSC/005	Dual channel 20Mbps PCM decommutator PCI card
Telemetry Cards	
GTS/RCV/001/PBE	14 Mbps E-band receiver PCI card with 12 IF filters
GTS/RCV/001/PBL	14 Mbps L-band receiver PCI card with 12 IF filters
GTS/GPS/002	PCI card with GPS and IRIG-A/B inputs and IRIG-B output

PCs

GTS/LPC/003	Rugged Lunchbox PC
GTS/IPC/002	19" x 4U Rackmount Industrial PC
GTS/RPC/001	Rugged Notebook PC
GTS/NPC/001	Notebook PC

Software

SWS/GTS/003	GS Studio setup and management software for ground stations
SWA/GSW/007	GS Works visualization and analysis software package

Accessories

GTS/KEY/001	19" x 1U Rackmount keyboard drawer with trackball
GTS/KVM/001	19" x 1U Rackmount 8-port KVM switch
GTS/MCI/001	CompactFlash® card reader with USB interface
GTS/LCD/001	19" x 2U Rackmount 20.1-inch LCD panel with integrated keyboard
GTS/BAY/001	Desktop PC 5.25 inch DRE/SSD/001 harness
SAM/DEC/007	Type II IRIG-106 compatible PCM decommutator

ACRA CONTROL Onboard



































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