

ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

**Artisan Technology Group**
(217) 352-9330 | sales@artisantg.com | artisantg.com

**Full-service, independent repair center**
with experienced engineers and technicians on staff.

**We buy your excess, underutilized, and idle equipment**
along with credit for buybacks and trade-ins.

**Custom engineering**
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

**Expert team | Trust guarantee | 100% satisfaction**

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Find the *Microsemi / Symmetricom 87-8035* at our website: *Click HERE*

The XLi SAASM is scheduled to be discontinued on December 30, 2017. Contact Microsemi regarding replacement.

DATA SHEET

# XLi SAASM GB-GRAM

## Time and Frequency Receiver

### Key Features

- SAASM GB-GRAM PPS GPS receiver with RAIM
- Military signal P(Y) code SAASM GPS receiver and civil signal C/A-Code GPS receiver
- Available with dual redundant SAASM GPS (P(Y)) receiver in one chassis
- Better than ±20 nanoseconds RMS accuracy to UTC
- Better than $1x10^{-12}$ frequency accuracy (1 day averaging)
- Standard 10/100 Base-T Ethernet
- Intuitive web based management
- HTTP, Telnet, SNMP with MIB standard
- Enterprise MIB, FTP (for firmware upgrades)
- Hot start ready via DAGR/PLGR
- Standard vacuum fluorescent display and keypad
- Completely modular with plug-and-play capability
- Numerous field-upgradeable, plug-in option cards available
- Flash memory for remote software upgrades
- IRIG time code generator
- Standard 1PPS, Selectable Pulse Rate Outputs, Alarm, Auxiliary Reference, and Code In/Out for AM or DC IRIG A, B; IEEE 1344, or NASA 36

The XLi SAASM GB-GRAM Time and Frequency Receiver is an ultra accurate time and frequency instrument with a secure, Selective Availability Anti-Spoofing Module (SAASM) based GPS receiver. Developed for authorized military users, the XLi SAASM supports a wide range of applications including secure synchronization of military communication systems.

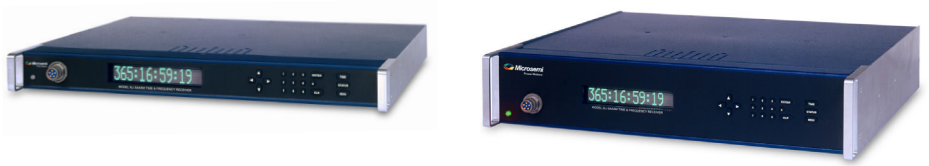
Powerful, accurate and versatile, this Precise Positioning Service (PPS) GPS instrument authenticates satellite signals (when keyed) with anti-spoofing (A-S) technology and corrects for Selective Availability (SA) if enabled. With the dual frequency XLi SAASM, the P(Y) code is received on both the L1 and L2 bands.

The XLi SAASM's GB-GRAM receiver is a lightweight, third-generation GPS PPS, 12-channel receiver supporting Direct Y and unclassifed (controlled) Black keys. The internal Ground-Based GPS Receiver Application Module (GB-GRAM) complies with the U.S. Government's GB-GRAM program that fulfills a GPS Wing initiative to migrate to a defined, open system architecture for ground-based embedded military applications. GB-GRAM incorporates the SAASM security device and is a low-power, secure, jam resistant standardized GPS solution used in communications and weapons platforms across the military.

Taking into account the Joint Chiefs of Staff mandate that all newly fielded DoD systems using GPS shall use SAASM PPS devices after 1 October 2006 (unless waivered), the XLi SAASM provides the highest immunity to jamming plus multiple options that enable military users to tailor their systems to support nearly every possible output/input needed for time and frequency applications. XLi SAASM also supports a hot start from a DAGR or PLGR to facilitate direct acquisition of the P(Y) code in a hostile environment where C/A code is denied or jammed.

The XLi SAASM configuration recognition software automatically detects the unit's setup at power-on providing "plug-and-play" configuration capability for current and future application needs. Many of the XLi SAASM's hardware and software options can be easily upgraded in the field.

Easily deployed to generate ultra high precision time and frequency outputs for mission critical applications, the XLi SAASM offers an intuitive HTML network centric interface along with telnet, and SNMP as standard features and optional NTP, in addition to 1PPS (Pulse Per Second); code In/Out for IRIG A, B; IEEE 1344, or NASA 36 (AM or DC); programmable rates; open collector alarm; a keypad; RS-232/422 port; time interval/ event timing (TI/ET); frequency measurement and more.




XLi SAASM GB-GRAM Time and Frequency Receiver (Left: 1U Model, Right: 2U Model)

# Specifications

## GPS SAASM GB-GRAM RECEIVER

- Receiver Input: L1/L2, P(Y) code (PPS), SAASM GB-GRAM
- Tracking: 12 parallel, dual-frequency channels with RAIM (Receiver Autonomous Integrity Monitoring)
- Crypto Key Input: DS-102. Compatible with AN/PYQ-10, AN/CYZ-10, KYK-13
  Black/red key support. Front panel connector.
- Security: SAASM GB-GRAM GPS PPS receiver
- Antenna/Preamplifier: L1 1574.42 MHz and L2 1227.60 MHz, 40 dB gain
- Acquisition Time: Cold start < 20 min. (typical)
- 1PPS Output Accuracy: UTC(USNO) ±20 nsec RMS, 100 nsec peak (99%)
- Frequency Output Accuracy: $1 \times 10^{-12}$ @ 1 day
- Frequency/Timing Allan Deviation Stability (HS OCXO): $4 \times 10^{-11}$ @ 1 sec
  $4 \times 10^{-11}$ @ 1000 sec
  $1 \times 10^{-12}$ @ 1 day
- Temperature Stability (unlocked): $1 \times 10^{-9}$ (0° C to 50° C) typical

## OSCILLATOR

- Standard Oscillator: High Stability OCXO (HS OCXO)
- Optional Oscillators: Rubidium, High Stability Rubidium

## STANDARD INPUT/OUTPUT SIGNALS

- Eight Standard I/Os
  Two for Control and Monitoring: Serial and Ethernet port.
  Six for Signals: 1PPS out, code in, code out, rate out, aux reference, and Open Collector Alarm output (all with BNC female connector).
  I/Os are configurable via the keypad/display, RS232/422, and the standard network port.
- RS-232/422: User selectable up to 19200 bps
  Connector: Male 9-pin D subminiature
- Network Interface: Standard 10/100 Base-T, RJ-45 8-pin connector.
  Protocols: HTTP, Telnet and SNMP; FTP (for firmware upgrades), and optional NTP and SNTP.
- 1PPS: Pulse width: 20 µs (±1 µs) on the rising edge on time, TTL levels into 50 Ω, BNC female connector.
- Code Input: AM or DC code IRIG A, B, IEEE 1344, and NASA-36
  AM Code: 0.5 Vp-p to 10 Vp-p, 100 kΩ ground, ratio (AM): 3:1 ±10%
  DC Code: Logic low < 1.25 V and Min 300 mV,
  Logic Hi >1.25 V and Max 10 V.
  Impedance: 100 k or 50 Ω
  Connector: BNC female
- Code Out: Default is IRIG-B AM
  Format: AM or DC code IRIG A, B, IEEE 1344, and NASA-36.
  AM Code: 3 Vp-p, into 50 Ω ±10%, ratio (AM): 3:1.
  DC Code: TTL into 50 Ω
  Connector: BNC female
- Rate Out: Default: 10 MPPS. Rate: 1/10/100 PPS; 1/10/100 kPPS; 1/5/10 MPPS
  Duty cycle: 50% and 60/40%
  Amplitude: TTL levels into 50 Ω
  Connector: BNC female
- Aux Ref Input: Input frequency: 1, 5, and 10 MHz sine-wave.
  Amplitude: 1 Vp-p to 10 Vp-p at 1 kΩ to ground.
  1 Vp-p to 3 Vp-p at 50 Ω to ground.
  Impedance: Configurable 1 kΩ or 50 Ω to ground
  Connector: BNC female
- Alarm: Open collector. Max 25 V/50 mA.BNC female

## ADDITIONAL STANDARD FEATURES

- External Frequency Measure
  - Frequencies: 1, 5, 10 MHz
  - Resolution: $1 \times 10^{-12}$ @ 100 seconds
  - Accuracy: $1 \times 10^{-12}$ @ 1 day
- Time Interval/Event Timing
  - Resolution: 5 nsecs
  - Accuracy: ± 5 nsecs to XLi SAASM clock

## MECHANICAL/ENVIRONMENTAL

- Time and Frequency System
  - Power: Voltage: 90–260 Vac
    Frequency: 47–440 Hz
    Connector: IEC 320
  - Size: 1U: 1.75" x 17.1" x 15.35" (4.44 cm x 43.4 cm x 38.9 cm)
    2U: 3.5" x 17.1"x 15.35" (8.89cm x 43.4cm x 38.9cm)
    Standard 19" (48.26 cm) EIA rack system.
  - Operating Temperature: 0° C to + 50° C (+32° F to +122° F)
  - Storage Temperature: –55° C to + 85° C (–67° F to + 185° F)
  - Humidity: 95%, non-condensing
  - Display: Graphics (160 X 16) vacuum fluorescent display. One line for time and day of year (TOD). Two-line alpha numeric display for status messages and user input.
    Keypad: numeric 0–9, left, right, up, down, CLR, Enter, time key, status key and menu key.
- Antenna
  - Size: 4" x 3.75" x 1.6" (10.16 cm x 9.53 cm x 4.07 cm)
  - Input: BNC female to GPS receiver. TNC on antenna
  - Power: +12 Vdc
  - Operating/Storage Temp: –55°C to +85°C (–67°F to +185°F)
  - Humidity: 95%, non-condensing
  - Certification: UL, FCC, CE, and C-UL

## OPTIONS

See Options datasheet for details: XLi SAASM Options Datasheet

**Software:**

- Network time server on standard network port
- Programmable pulse output
- TimeMonitor Software for XLi

**Hardware:**

- Oscillator upgrades: Rubidium, High Stability Rubidium
- 1, 5, 10 MHz/MPPS frequency outputs
- Low phase noise frequency output (5 MHz and 10 MHz)
- Enhanced Low Phase Noise 10 MHz output
- N.8 frequency synthesizer, 8 kPPS to 8.192 MPPS in 8 kPPS steps
- N.1 Frequency Synthesizer, 1 PPS to 50 MPPS in 1 PPS steps
- Have Quick/1 PPS Time and Frequency Reference
- Have Quick output
- Multicode output for IRIG A, B, E, G, H; XR3/2137 and NASA 36
- DC power supplies (12 VDC, 24 VDC, and 48 VDC options)
- Telecommunications interface (E1 and T1 output options)
- Parallel BCD output
- PTTI BCD output with 10 volt 1PPS & 1PPM
- Expansion Module (4 user selected timing outputs)
- Extended cable length solutions: in-line amplifier (to 300'), fiber optic (to 2 km)



Rear View (1U model with two option modules)

The XLi SAASM has been granted the Global Positioning Systems Wing Security Approval. United States government policy restricts the sale of Precise Positioning Service (PPS) GPS equipment such as the XLi SAASM to only users authorized by the U.S. Department of Defense. The views expressed in this brochure are those of Microsemi and do not necessarily reflect the official policy or position of the Global Positioning Systems Wing, the Air Force, the DoD, or the U.S. Government.



Microsemi Corporate Headquarters
One Enterprise, Aliso Viejo,
CA 92656 USA

Within the USA: +1 (800) 713-4113
Outside the USA: +1 (949) 380-6100
Sales: +1 (949) 380-6136
Fax: +1 (949) 215-4996

E-mail: sales.support@microsemi.com

© 2015 Microsemi Corporation. All rights reserved. Microsemi and the Microsemi logo are trademarks of Microsemi Corporation. All other trademarks and service marks are the property of their respective owners.

Microsemi Corporation (Nasdaq: MSCC) offers a comprehensive portfolio of semiconductor and system solutions for communications, defense & security, aerospace and industrial markets. Products include high-performance and radiation-hardened analog mixed-signal integrated circuits, FPGAs, SoCs and ASICs; power management products; timing and synchronization devices and precise time solutions, setting the world's standard for time; voice processing devices; RF solutions; discrete components; security technologies and scalable anti-tamper products; Ethernet Solutions; Power-over-Ethernet ICs and midspans; as well as custom design capabilities and services. Microsemi is headquartered in Aliso Viejo, Calif., and has approximately 3,600 employees globally. Learn more at www.microsemi.com.

Microsemi makes no warranty, representation, or guarantee regarding the information contained herein or the suitability of its products and services for any particular purpose, nor does Microsemi assume any liability whatsoever arising out of the application or use of any product or circuit. The products sold hereunder and any other products sold by Microsemi have been subject to limited testing and should not be used in conjunction with mission-critical equipment or applications. Any performance specifications are believed to be reliable but are not verified, and Buyer must conduct and complete all performance and other testing of the products, alone and together with, or installed in, any end-products. Buyer shall not rely on any data and performance specifications or parameters provided by Microsemi. It is the Buyer's responsibility to independently determine suitability of any products and to test and verify the same. The information provided by Microsemi hereunder is provided "as is, where is" and with all faults, and the entire risk associated with such information is entirely with the Buyer. Microsemi does not grant, explicitly or implicitly, to any party any patent rights, licenses, or any other IP rights, whether with regard to such information itself or anything described by such information. Information provided in this document is proprietary to Microsemi, and Microsemi reserves the right to make any changes to the information in this document or to any products and services at any time without notice.

**Artisan Technology Group** is an independent supplier of quality pre-owned equipment

## Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

## We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

## Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP