

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.

Visit our website - *Click HERE*

Avionics

GPS-101 GPS Satellite Simulator



An innovative approach for verifying the operational integrity of installed Global Positioning Satellite (GPS) systems

- Verify operational integrity of GPS receivers quickly
- Selectable Satellite Vehicle (SV) and Navigation (NAV) Data
- Adjustable RF levels from -85 dBm to -145 dBm in 1 dB steps
- Doppler control allows the operator to select a positive or negative carrier frequency shift of approximately 4 kHz
- Stored GPS Almanac with real time clock
- Direct connect to receiver or via antenna coupler
- Battery operated portability

Aeroflex is a leader in the design, manufacture and marketing of Avionics test systems.

The IFR GPS-101 Global Positioning Simulator provides accurate and repeatable testing of Global Positioning Satellite (GPS) receivers. The GPS-101 achieves this testing capability by simulating a Global Positioning Satellite and generating a specific Satellite Vehicle (SV) and Navigation (NAV) data pattern. Coupled with remotely loaded GPS almanac information and RF levels/frequency control, the GPS-101 provides a portable test solution for verifying the operational integrity of GPS systems.

The GPS-101 verifies the operational integrity of:

- An integrated GPS receiver - antenna system (e.g. a hand held unit) with built-in test modes accessible by transmitting special satellite (SV) numbers and navigational (NAV) data word that will cause an indication or received signal strength.
- An installed GPS receiver with remote antenna system.
- Any GPS receiver or installation capable of indicating that a single satellite with appropriate navigation data was detected.

Operation

The GPS-101 provides dedicated front panel keys for all primary functions. Selected parameters are displayed on a wide viewing angle, high contrast, backlit LCD display.

MODE KEYS

RF LVL

The RF level can be adjusted from -85 to -145 dBm in 1 dB steps via slew wheel control to verify GPS.

DPLR

The doppler control allows the operator to select a positive or negative carrier frequency shift of approximately 4 kHz to verify receiver acquisition and lock performance.

SV

Selects the satellite vehicle to be simulated (1 through 37). The almanac data is utilized to display an asterisk alongside the selected satellite vehicle if the satellite is unhealthy or not available.

RF CONT

The RF control selects the modulating source for the 1575.42 MHz

generator. The selections are RFOFF: turns carrier off, RFCW: unmodulated carrier, RFON: C/A code and NAV data (spread spectrum signal), RFEXT: external BPSK modulation through AUX I/O connector and RFSQR: 511.5 kHz square wave modulation (maintenance purposes).

SETUP:

Provides access to menus for setting RS-232/422 communications port parameters, test set operational characteristics and self test.

TEST:

Selects one of three stored NAV data patterns. (Three data patterns reserved for future use)

1. T_1: NAV data that contains programmable almanac information and GPS week and time of week fields. The almanac data is valid for a 30 day period and may be downloaded in 'YUMA' ASCII text format via the RS-232 port. Current almanac data is available from the U.S. Coastguard Internet Web Site. The GPS-101 has an internal real time clock that keeps UTC time and is programmable by the user.
2. T_2: NAV data pattern that contains fixed GPS week and time of week.
3. T_3: Fixed 11001100.. repeating test pattern.

Select Keys: Moves cursor to selected field/parameter.

Display Keys: Contrast setting keys and display backlight on/off key.

ESC Key: Returns to main operation screen.

Slew Wheel: Allows rapid data slewing.

SPECIFICATION

GENERATOR

Frequency

1575.42 MHz

Accuracy

Same as Master Timebase

Doppler

Selectable frequency offset ±4.0 kHz

Offset Accuracy

See Master Oscillator

Channels

Single SV simulation, selectable from 1 to 37

Phase Modulation

BPSK

PRN Code

C/A code = 1.023 MHz, 1023 bit gold code

NAV Data

50 Hz, Programmable test pattern, built-in patterns

Output Level

-85 to -145 dBm in 1 dB steps, ±2 dB accuracy into 50 Ω (AC Coupled) Standard Cable, 4 dB loss

Spurious

<-40 dBc over the bandwidth (20 MHz)

External Modulation Input

TTL

MASTER OSCILLATOR

Standard Timebase

Frequency

10 MHz nominal (see note)

Temperature Stability

±1 ppm

Ageing Rate

±1 ppm/yr, ±5 ppm/10 yr

Uncertainty

±1 ppm

Option Timebase

Frequency

10 MHz nominal (see note)

Temperature Stability

±0.1 ppm

Ageing Rate

±0.1 ppm/yr

Uncertainty

±0.1 ppm

Note: Internal timebase frequency is a function of timebase calibration, ageing rate, temperature stability and uncertainty.

External Reference Input

Input Level

0.25 to 6.0 Vp-p

Input Impedance

150 Ω nominal

Input Frequency

10.0 MHz

External Reference Output

Output Level

1.5 Vp-p nominal into 50 Ω

Output Frequency

10.0 MHz nominal

COUPLER

Coupling

-20 dB typical at 1575.42 MHz

Assumes

4.77 dB patch antenna gain and 4 dB cable loss

Isolation

>25 dB at 1575.42 MHz

>30 dB typical at 1575.42 MHz

GENERAL

Calibration Interval

1 year

AC Input

90 to 120 VAC, 50 to 400 Hz

200 to 240 VAC, 50 to 60 Hz

Battery Operation Time

120 minutes minimum, 360 minutes nominal

AC Power Consumption

<50 W maximum, <40 W typical

Battery Charge Time

Unit Operating

8 hours for full charge @ 115 VAC, 60 Hz

Unit non-operating

6 hours for full charge @ 115 VAC, 60 Hz

Operating Temperature

-20° to +55°C

Storage Temperature

-20° to +70°C

Humidity

95% (±5%), non-condensing

+10° to +30°C

Dimensions

292 mm wide; 131 mm high; 412 mm deep, does not include handle.
11.4 in. wide; 5.1 in. high; 16.1 in. deep, does not include handle.

Weight

9 kg (20 lbs.) maximum (with battery) does not include lid and lid contents

CONNECTOR TYPES

RF Output

TNC, Female

Auxiliary Port

25-pin D-Sub, Male

RS-232 "REMOTE" (COMM 1)

9-pin D-Sub, Male, PC compatible

RS-232/422 "RECEIVER" (COMM 2)

25-PIN D-Sub, Male, PC compatible

FCC Type Accepted, CFR47 Part 87.

Complies with UL/CSA/EU Product Safety Standards

VERSIONS AND ACCESSORIES

When ordering please quote the full ordering number information.

Ordering Numbers

Versions

101-110	GPS-101 Global Positioning System Ramp Test Set, 110 VAC operation
101-220	GPS-101 Global Positioning System Ramp Test Set, 220 VAC operation

Accessories

OPT 1	0.1 ppm High Stability Time Base

All Aeroflex Avionics products delivered with Factory Certificate of Calibration

CHINA Beijing
Tel: [+86] (10) 6467 2761 2716
Fax: [+86] (10) 6467 2821

CHINA Shanghai
Tel: [+86] (21) 6282 8001
Fax: [+86] (21) 62828 8002

FINLAND
Tel: [+358] (9) 2709 5541
Fax: [+358] (9) 804 2441

FRANCE
Tel: [+33] 1 60 79 96 00
Fax: [+33] 1 60 77 69 22

GERMANY
Tel: [+49] 8131 2926-0
Fax: [+49] 8131 2926-130

HONG KONG
Tel: [+852] 2832 7988
Fax: [+852] 2834 5364

INDIA
Tel: [+91] 80 5115 4501
Fax: [+91] 80 5115 4502

KOREA
Tel: [+82] (2) 3424 2719
Fax: [+82] (2) 3424 8620

SCANDINAVIA
Tel: [+45] 9614 0045
Fax: [+45] 9614 0047

SPAIN
Tel: [+34] (91) 640 11 34
Fax: [+34] (91) 640 06 40

UK Burnham
Tel: [+44] (0) 1682 604455
Fax: [+44] (0) 1682 662017

UK Stevenage
Tel: [+44] (0) 1438 742200
Fax: [+44] (0) 1438 727601
Freephone: 0800 282388

USA
Tel: [+1] (316) 522 4981
Fax: [+1] (316) 522 1360
Toll Free: 800 835 2352

AEROFLEX
A passion for performance.

As we are always seeking to improve our products, the information in this document gives only a general indication of the product capacity, performance and suitability, none of which shall form part of any contract. We reserve the right to make design changes without notice. All trademarks are acknowledged. Parent company Aeroflex, Inc. ©Aeroflex 2004.

www.aeroflex.com

info-test@aeroflex.com

Our passion for performance is defined by three attributes represented by these three icons: solution-minded, performance-driven and customer-focused.

Part No. 46891/034, Issue 3, 08/03

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