



# GPSG-1000

## GPS/Galileo Positional Simulator

### Getting Started Manual

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**GPSG-1000**

**GPS/Galileo  
Positional Simulator**

**Getting Started Manual**

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## **GPSG-1000 Getting Started Manual**

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10200 West York / Wichita, Kansas 67215 U.S.A. (316) 522-  
4981 / FAX (316) 524-2623

This manual contains essential information relating to initial use of the unit.  
Aeroflex recommends the operator become familiar with the Operation Manual  
contained on the accompanying CD-ROM

Aeroflex updates Test Set software on a routine basis.  
As a result, examples may show images from earlier software versions.  
Images are updated when appropriate.

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**Standard Hardware Warranty**

THIS WARRANTY APPLIES ONLY TO PRODUCTS MANUFACTURED AT THE WICHITA LOCATION.

Aeroflex warrants, under customary use and service, the hardware product to be free from defects in material and workmanship for a period of TWO (2) YEARS from the shipping date. In addition, battery packs and external optional equipment have a 90-day warranty. This period shall be referred to as "The Standard Limited Warranty Period". Aeroflex's obligation under this warranty is limited to replacing or repairing, at Aeroflex's option, free of charge except for certain freight charges as described herein, any defective part or parts of the instrument. If the instrument is found not to be defective in material or workmanship, or in the event the warranty claim is invalid because of failure to comply with the provisions herein, Aeroflex shall notify the customer and shall only repair or replace the instrument parts at customer's direction and expense.

The warranty does not apply to any instrument that has been subject to misuse, alteration, negligence, accident, shipping damage, improper installation, or improper operation, or that in any way has been tampered with or repaired by any person other than an authorized Aeroflex service organization or any employee thereof, or to any instrument whose serial number has been altered, defaced or removed. Annual certified calibration is not included in the warranty.

Aeroflex shall not be liable for any delay or failure to repair or furnish a replacement part, including but not limited to, delays resulting directly or indirectly from any governmental restriction, priority, or allocation, or any other governmental regulatory order or action, nor shall Aeroflex be liable for damages (direct, indirect, or consequential) by reason of the failure of the instrument to perform properly.

Aeroflex performed repairs shall be warranted from defective material and workmanship for NINETY (90) DAYS or until the end of the Standard Limited Warranty Period whichever is longer. Risk of loss or damage to Product returned to Aeroflex for repair or replacement shall be borne by customer until delivery to Aeroflex. Upon delivery of such product, Aeroflex shall assume the risk of loss or damage until such time as the product being repaired or replaced is returned and delivered to customer. Customer shall pay all transportation costs for equipment or software shipped to Aeroflex for repair or replacement. Aeroflex shall pay all transportation costs associated with returning repaired or replaced product to customer.

This warranty shall, at Aeroflex's option, become void if the equipment ownership is transferred, unless the prior owner or the proposed owner obtains approval from Aeroflex of continuation of the warranty prior to the transfer of ownership.

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## GPSG-1000 Getting Started Manual

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Dear Customer,

Thank you for purchasing this test instrument. Aeroflex takes pride in the products that it manufactures. In designing instruments with leading edge technology, and building instruments using state of the art manufacturing processes, Aeroflex aims to build a reliable, robust, functional and 'fit for purpose' test instrument.

If, for some reason, your test instrument does not reach you in perfect working order, or you have any questions about your test instrument, please do not hesitate to contact the sales office where you originally purchased your instrument, or contact one of our Aeroflex Regional Support Centers using the contact information below:

<b>Americas:</b>	
<b>Tel:</b>	[+1] 800-835-2350 Toll Free (US Only)
	[+1] (316)-529-5511
<b>Fax:</b>	866-325-1180 Toll Free (US Only)
	[+1] (316) 529-5330
americas.service@aeroflex.com	

<b>EMEA:</b>	
<b>Tel:</b>	[+44] (0) 8706 080134
<b>FAX:</b>	[+44] (1438) 772203
emea.service@aeroflex.com	

<b>APAC:</b>	
<b>Tel:</b>	[+65] 6873 0991
<b>Fax:</b>	[+65] 6873 0992
apac.service@aeroflex.com	

Aeroflex also offers extended warranty contracts, which enable you to lock in maintenance cost savings when you purchase a new instrument. If you did not take this option at the time of your initial sale, Aeroflex is pleased to extend the same offer for 90 days from the date of your product delivery. For information about extended warranty options and pricing, contact the sales office where you originally purchased your instrument, or contact one of our Aeroflex Regional Support Centers using the contact information above.

If you decide not to participate in one of our extended warranty programs and the manufacturer's warranty has expired, Aeroflex offers a number of additional support options. These support programs are designed for maintenance cost predictability and cost containment in easy to use convenient packages. For more in depth information on any Aeroflex support package, please contact 1-800-835-2350, or (316)-529-5511, contact us via [americas.service@aeroflex.com](mailto:americas.service@aeroflex.com), or visit our web site at [www.aeroflex.com](http://www.aeroflex.com).

Thank You,

The Aeroflex Customer Support Team

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**Electromagnetic Compatibility**

Double shielded and properly terminated external interface cables must be used with this equipment when interfacing with the RS-232 and Ethernet.

For continued EMC compliance, all external data bus cables must be shielded and 3 meters or less in length.

**Nomenclature Statement**

In this manual, GPSG-1000, Simulator, Test Set or Unit refers to the GPSG-1000 GPS/Galileo Positional Simulator.

**Declaration of Conformity**

The Declaration of Conformity Certificate included with the Unit should remain with the Unit.

Aeroflex recommends the operator reproduce a copy of the Declaration of Conformity Certificate to be stored with the Operation Manual for future reference.

**Precautions**  
**SAFETY FIRST - TO ALL OPERATIONS PERSONNEL**

**General Conditions of Use**

This product is designed and tested to comply with the requirements of IEC/EN61010-1 'Safety requirements for electrical equipment for measurement, control and laboratory use' for Class I portable equipment and is for use in a pollution degree 2 environment. The equipment is designed to operate from installation supply Category II.

Equipment should be protected from liquids such as spills, leaks, etc. and precipitation such as rain, snow, etc. When moving the equipment from a cold to hot environment, allow the temperature of the equipment to stabilize before the equipment is connected to the supply to avoid condensation forming. The equipment must only be operated within the environmental conditions specified in the performance data.

This product is not approved for use in hazardous atmospheres or medical applications. If the equipment is to be used in a safety-related application, such as avionics or military applications, the suitability of the product must be assessed and approved for use by a competent person.

Refer all servicing of unit to Qualified Technical Personnel. This unit contains no operator serviceable parts.

**Case, Cover or Panel Removal**

Opening the Case Assembly exposes the operator to electrical hazards that may result in electrical shock or equipment damage. Do not operate this Test Set with the Case Assembly open.

**Safety Identification in Technical Manual**





This manual uses the following terms to draw attention to possible safety hazards that may exist when operating or servicing this equipment:

<b>CAUTION</b>	<b>IDENTIFIES CONDITIONS OR ACTIVITIES THAT, IF IGNORED, CAN RESULT IN EQUIPMENT OR PROPERTY DAMAGE, E.G. FIRE.</b>
<b>WARNING</b>	<b>IDENTIFIES CONDITIONS OR ACTIVITIES THAT, IF IGNORED, CAN RESULT IN PERSONAL INJURY OR DEATH.</b>



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### Safety Symbols in Manuals and on Units

	<b>CAUTION:</b> Refer to accompanying documents. This symbol refers to specific CAUTIONS represented on the unit and clarified in the text.
	Indicates a Toxic hazard.
	Indicates item is static sensitive.
	<b>AC TERMINAL:</b> Terminal that may supply or be supplied with AC or alternating voltage.

### Equipment Grounding Protection

Improper grounding of equipment can result in electrical shock.

### Use of Probes

Refer to Performance Specifications for the maximum voltage, current and power ratings of any connector on the Test Set before connecting a probe from a terminal device. Be sure the terminal device performs within these specifications before using the probe for measurement, to prevent electrical shock or damage to the equipment.

### Power Cords

Power cords must not be frayed or broken, nor expose bare wiring when operating this equipment.

### Internal Battery

This unit contains a Lithium Ion Battery, serviceable only by a qualified technician.

### EMI (Electromagnetic Interference)

#### CAUTION

**SIGNAL GENERATORS CAN BE A SOURCE OF ELECTROMAGNETIC INTERFERENCE (EMI) TO COMMUNICATION RECEIVERS. SOME TRANSMITTED SIGNALS CAN CAUSE DISRUPTION AND INTERFERENCE TO COMMUNICATION SERVICE OUT TO A DISTANCE OF SEVERAL MILES. USER OF THIS EQUIPMENT SHOULD SCRUTINIZE ANY OPERATION THAT RESULTS IN RADIATION OF A SIGNAL (DIRECTLY OR INDIRECTLY) AND SHOULD TAKE NECESSARY PRECAUTIONS TO AVOID POTENTIAL COMMUNICATION INTERFERENCE PROBLEMS.**


Subject to Export Control, see Cover Page for details.

**Fire Hazards**

<b>WARNING</b>	<b>MAKE SURE THAT ONLY FUSES OF THE CORRECT RATING AND TYPE ARE USED FOR REPLACEMENT. IF AN INTEGRALLY FUSED PLUG IS USED ON THE SUPPLY LEAD, ENSURE THAT THE FUSE RATING IS COMMENSURATE WITH THE CURRENT REQUIREMENTS OF THIS EQUIPMENT.</b>
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**Toxic Hazards**

<b>WARNING</b>	<b>SOME OF THE COMPONENTS USED IN THIS EQUIPMENT MAY INCLUDE RESINS AND OTHER MATERIALS WHICH GIVE OFF TOXIC FUMES IF INCINERATED. TAKE APPROPRIATE PRECAUTIONS IN THE DISPOSAL OF THESE ITEMS.</b>
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	<b>BERYLLIA</b>
<b>WARNING</b>	<b>BERYLLIA (BERYLLIUM OXIDE) IS USED IN THE CONSTRUCTION OF SOME OF THE COMPONENTS IN THIS EQUIPMENT. THIS MATERIAL, WHEN IN THE FORM OF FINE DUST OR VAPOR AND INHALED INTO THE LUNGS, CAN CAUSE A RESPIRATORY DISEASE. IN ITS SOLID FORM, AS USED HERE, IT CAN BE HANDLED SAFELY, HOWEVER, AVOID HANDLING CONDITIONS WHICH PROMOTE DUST FORMATION BY SURFACE ABRASION. USE CARE WHEN REMOVING AND DISPOSING OF THESE COMPONENTS. DO NOT PUT THEM IN THE GENERAL INDUSTRIAL OR DOMESTIC WASTE OR DISPATCH THEM BY POST. THEY SHOULD BE SEPARATELY AND SECURELY PACKED AND CLEARLY IDENTIFIED TO SHOW THE NATURE OF THE HAZARD AND THEN DISPOSED OF IN A SAFE MANNER BY AN AUTHORIZED TOXIC WASTE CONTRACTOR.</b>

Toxic Hazards (cont)



**BERYLLIUM COPPER**

**WARNING**

SOME MECHANICAL COMPONENTS WITHIN THIS INSTRUMENT ARE MANUFACTURED FROM BERYLLIUM COPPER. THIS IS AN ALLOY WITH A BERYLLIUM CONTENT OF APPROXIMATELY 5%. IT REPRESENTS NO RISK IN NORMAL USE. THE MATERIAL SHOULD NOT BE MACHINED, WELDED OR SUBJECTED TO ANY PROCESS WHERE HEAT IS INVOLVED. IT MUST BE DISPOSED OF AS "SPECIAL WASTE". IT MUST NOT BE DISPOSED OF BY INCINERATION.



**LITHIUM**

**WARNING**

A LITHIUM BATTERY IS USED IN THIS EQUIPMENT. LITHIUM IS A TOXIC SUBSTANCE SO THE BATTERY SHOULD IN NO CIRCUMSTANCES BE CRUSHED, INCINERATED OR DISPOSED OF IN NORMAL WASTE. DO NOT SHORT CIRCUIT OR FORCE DISCHARGE SINCE THIS MIGHT CAUSE THE BATTERY TO VENT, OVERHEAT OR EXPLODE.

**INPUT OVERLOAD LEVELS**

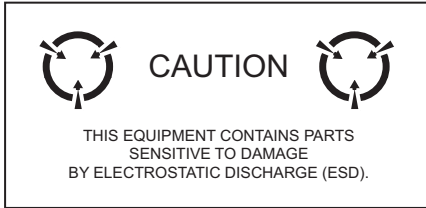
**CAUTION**


TX PORT MAXIMUM REVERSE POWER  
100 mW

**CAUTION**

RX LEVEL MUST NOT EXCEED -20 dBm

**Static Sensitive Components**



	<p>This equipment contains components sensitive to damage by Electrostatic Discharge (ESD). All personnel performing maintenance or calibration procedures should have knowledge of accepted ESD practices and/or be ESD certified.</p>
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A red-bordered box containing a yellow triangular warning symbol on the left and a text block on the right. The symbol is a black triangle with a yellow background and a black lightning bolt in the center. The text block contains the following text: "This equipment contains components sensitive to damage by Electrostatic Discharge (ESD). All personnel performing maintenance or calibration procedures should have knowledge of accepted ESD practices and/or be ESD certified."

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**1 SERVICE UPON RECEIPT OF MATERIAL**

**1.1 Unpacking**

Special design packing material inside this shipping container provide maximum protection for the Test Set. Avoid damaging the shipping container and packaging material when unpacking equipment; if necessary the shipping container and packaging material can be reused to ship the Test Set.

Use the following steps to unpack the Test Set:

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STEP	PROCEDURE
1.	Cut and remove sealing tape on top of the shipping container. Open shipping container and remove top packing mold.
2.	Grasp the Test Set firmly while restraining the shipping container. Lift the equipment and packing material vertically out of the shipping container.
3.	Place Test Set and end cap packing on a flat, clean and dry surface.
4.	Remove protective plastic bag from the Test Set.
5.	Place protective plastic bag and end cap packing materials inside shipping container.
6.	Store shipping container for possible future use.

## 1.2 Checking Unpacked Equipment

Inspect equipment for possible damage incurred during shipment. If Test Set has been damaged, report the damage to Aeroflex Customer Service.

Review packing slip to verify shipment is complete. Packing slip identifies the standard items as well as purchased options. Report all discrepancies to Aeroflex

**Contact: Aeroflex**  
**Attn: Customer Service**  
10200 West York Street  
Wichita, Kansas 67215  
Telephone: 800-835-2350  
FAX: 316-524-2623  
email: americas.service@aeroflex.com

### Standard Items

ITEM	PART NUMBER	QTY
GPS/Galileo Positional Simulator	87339	1
Power Supply	67374	1
Power Cord (U.S.)	62302	1
Power Cord (European)	64020	1
Operation Manual (CD)	88037	1
Getting Started (paper)	88038	1
Coax Cable (50 ft)	90114	1
GPSG Antenna Coupler	87636	1
Shot Bag	88753	1
RX Antenna	90113	1

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**Optional Items**

<b>ITEM</b>	<b>PART NUMBER</b>	<b>QTY</b>
Battery Pack	86196	1
External Charger	87040	1
Antenna Coupler Placement Pole Kit (Pole and D Ring)	90106	1
Transit Case	88493	1
Kit, CPLR Dual GPS Antenna System	91136	1
Kit, CPLR Triple GPS Antenna System	91137	1
Maintenance Manual (CD)	89023	1
GPS Receiver Termination Kit, 190 Ohms	113108	1

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Subject to Export Control, see Cover Page for details.

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## 2 SPECIFICATIONS

### PHYSICAL CHARACTERISTICS

#### Height:

- 10.63 inches (27.0 cm)

#### Width:

- 13.97 inches (35.5 cm)

#### Depth:

- 3.425 inches (8.7 cm)

#### Weight (Test set only):

- <10 lbs. (4.5 kg)

### TEST SET CERTIFICATIONS

#### Operational Temperature:

- -20° to 55° C

#### Storage Temperature:

- -51° to 71° C when no battery is installed

#### Operational Humidity:

- MIL-PRF-28800F Class 2

#### Storage Humidity:

- MIL-PRF-28800F Class 2

#### Altitude:

- 4600 meters Class 1

#### Vibration Limits:

- MIL-PRF-28800F Class 2

#### Shock, Function:

- MIL-PRF-28800F Class 2

#### Transit Drop:

- MIL-PRF-28800F Class 2

#### Drip Proof:

- MIL-PRF-28800F Class 2

#### Dust:

- MIL-PRF-28800F Class 2

#### Explosive Atmosphere:

- MIL-PRF-28800F Class 1

#### Safety Compliance:

- UL-61010-1
- EN-61010-1

#### WEEE:

#### ROHS:

#### EMC

#### Emissions:

- MIL-PRF28800F Class 2
- EN 61326:1998 Class A
- EN 61000-3-2
- EN 61000-3-3

#### Immunity:

- MIL-PRF28800F Class 2
- EN 61326:1998 Class A



**EXTERNAL AC-DC CONVERTER CERTIFICATIONS**

**Safety Compliance:**

- UL 1950 DS
- CSA 22.2 No. 234
- VDE EN 60 950

**EMI/RFI Compliance:**

- FCC Docket 20780 Curve "B"

**EMC:**

- EN 61326

**TRANSIT CASE CERTIFICATIONS**

**Drop Test:**

- FED-STD-101C Method 5007.1 Paragraph 6.3,  
Procedure A, Level A

**Falling Dart Impact:**

- ATA 300 Category I

**Vibration, Loose Cargo:**

- FED-STD-101C Method 5019

**Vibration, Sweep:**

- ATA 300 Category I

**Simulated Rainfall:**

- MIL-STD-810F Method 506.4 Procedure II of 4.1.2

**FED-STD-101C:**

- Method 5009.1 Sec 6.7.1

**Immersion:**

- MIL-STD-810F Method 512.4

### 3 INSTALLATION

The GPSG-1000 Test Set is a Safety Class 1 instrument that must be grounded before use. The Test Set should only be connected to a grounded AC supply outlet.

#### 3.1 Safety Precautions

The following safety precautions must be observed during installation and operation. Aeroflex assumes no liability for failure to comply with any safety precaution outlined in this manual.

##### 3.1.A Complying with Instructions

Installation/operating personnel should not attempt to install or operate the Test Set without reading and complying with instructions contained in this manual. All procedures contained in this manual must be performed in exact sequence and manner described.

#### 3.1.B Grounding Power Cord

**WARNING**

**DO NOT USE A THREE-PRONG TO TWO-PRONG ADAPTER PLUG. DOING SO CREATES A SHOCK HAZARD BETWEEN THE CHASSIS AND ELECTRICAL GROUND.**

For AC operation, the AC Line Cable, connected to the External DC Power Supply, is equipped with a standard three-prong plug and must be connected to a properly grounded three-prong receptacle. It is the customer's responsibility to:

- Have a qualified electrician check receptacle(s) for proper grounding.
- Replace any standard two-prong receptacle(s) with properly grounded three-prong receptacle(s).

#### 3.1.C Operating Safety

Due to potential for electrical shock within the Test Set, the Case Assembly must be closed when the Test Set is connected to an external power source.

#### 4 EXTERNAL CLEANING

The following procedure contains routine instructions for cleaning the outside of the Test Set.

**CAUTION** DISCONNECT POWER FROM TEST SET TO AVOID POSSIBLE DAMAGE TO ELECTRONIC CIRCUITS.

STEP	PROCEDURE
1.	Clean front panel buttons and display face with soft lint-free cloth. If dirt is difficult to remove, dampen cloth with water and a mild liquid detergent.
2.	Remove grease, fungus and ground-in dirt from surfaces with soft lint-free cloth dampened (not soaked) with isopropyl alcohol.
3.	Remove dust and dirt from connectors with soft-bristled brush.
4.	Cover connectors, not in use, with suitable dust cover to prevent tarnishing of connector contacts.
5.	Clean cables with soft lint-free cloth.
6.	Paint exposed metal surface to avoid corrosion.

#### 5 CONTROLS AND CONNECTORS

##### 5.1 Front Panel Controls and Connectors

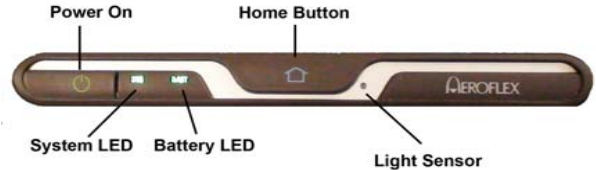


Fig. 1 Front Panel Controls

Control	Description
<b>Power On</b>	The Power On/Off Button is used to power the Test Set on and off.
<b>Home Button</b>	Pressing and holding the Home Button for 5 sec will set the backlight to maximum brightness.
<b>Magnetic Sensor</b>	Detects if the display cover is open or closed and used to turn off the display as part of power management.

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<b>Control</b>	<b>Description</b>
<b>System LED</b>	<p><b>Powered On</b> (green) Indicates the unit is in operational status.</p> <p><b>Failure</b> (red) Some form of failure has occurred which precludes using the display to indicate the problem (e.g. main processor failure, power supply fault, etc.).</p> <p><b>Boot</b> (blinking blue) Unit is booting and is not yet able to indicate status on the display (during initial OS and application load).</p> <p><b>Off/Standby</b> (orange) Unit is off, but power is supplied to the power supply from the AC power source.</p> <p><b>Off w/o External Supply</b> (off) Unit is off, no external power supplied.</p>

<b>Control</b>	<b>Description</b>
<b>Battery LED</b>	<p><b>Battery Voltage Low</b> (red) The unit will turn off within one minute without charger.</p> <p><b>Battery Pre-Charging</b> (flashing yellow) Trickle charge during extremely low voltage on the battery.</p> <p><b>Battery Charging</b> (flashing green) Charge in progress.</p> <p><b>Battery Fully Charged</b> (green)</p> <p><b>Battery Temperature Extreme</b> (blue) Temperature &lt;0° C or &gt;45° C. Can't charge battery.</p> <p><b>Battery Error</b> (red) Problem with the battery or charging system.</p> <p><b>Battery Missing</b> (off) AC applied without battery in place.</p> <p><b>Battery Suspended Charge</b> (flashing red) AC applied with battery charging suspended.</p>

Subject to Export Control, see Cover Page for details.

5.2 Rear Panel Controls and Connectors

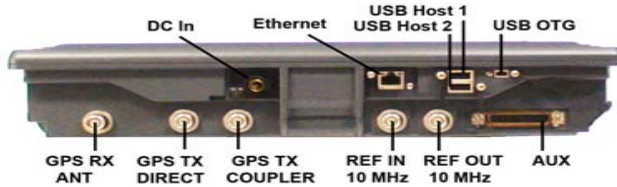


Fig. 2 Test Set Rear Panel Connectors

Connector	Description
<b>GPS Tx Coupler</b>	RF output for connection to Antenna Coupler.
<b>RF In 10MHz</b>	The 10MHz In (5V p-p Max) Connector, is a BNC connection, used to connect the Test Set to an external frequency standard, providing a TTL signal.
<b>RF Out 10MHz</b>	The 10MHz Out (1.5V p-p Nom) Connector, is a BNC connection, providing an output of the internal 10MHz reference Oscillator.
<b>Ethernet</b>	Standard Base T RJ45 connection. This connection can be used for software upgrades and for remote operation.
<b>Aux</b>	26 pin D type, providing ARINC 429 I/O, RS-232 I/O and a 1PPS TTL L1 C/A code frame sync output.

Connector	Description
<b>USB Host 1</b>	USB standard connection that allows connection of USB devices (e.g. a USB memory stick or Network connectors). Recommended USB memory device is Aeroflex PN 67325.
<b>USB Host 2</b>	USB standard connection that allows connection of USB devices (e.g. a USB memory stick or Network connectors). Recommended USB memory device is Aeroflex PN 67325.
<b>USB OTG</b>	USB On The Go, for future expansion.
<b>GPS Rx Ant</b>	External Antenna connection for Test Set internal GPS receiver.
<b>GPS Tx Direct</b>	RF output for direct connection to receiver under test. AC coupled, Maximum DC 50 V.

Subject to Export Control, see Cover Page for details.

## 6 USER INTERFACE COMPONENTS

The Test Set User Interface (UI) is a touch screen control panel that provides a flexible working environment for all users. The UI uses maximized Function Windows i.e. one function window occupies the whole screen area. The Test Set User Interface (UI) is navigated locally using the Front Panel Touch Screen.

### 6.1 Launch Bar

The Launch Bar is a vertical scrolling menu located at the left side of the User Interface. The Launch Bar provides access to the Function Icons. The menu must be opened to access the Function Icons. The Launch Bar is opened and closed by touching or clicking on the light gray bar at the left side the menu.

When opened, the Launch Bar appears in front of any Function Windows currently occupying that area of the display. The Launch Bar can be closed to view the complete Function Window.



Fig. 3 Launch Bar and Simulation Function Window

### 6.2 Launch Bar Navigation

The arrows on the top and bottom of the Launch Bar are used to scroll the Function Icons up and down.

### 6.3 Simulation Function Window

The Simulation Function Window provides visual access to the Test Set's operating parameters and measurement data.



Fig. 4 Function Window

Function	How to
<b>Opening/ Closing Function Windows</b>	Select Function Icon from the Launch Bar to open Function Windows. Function Windows are closed by selecting blue circle icon at bottom of window or by selecting the Function Icon on the Launch Bar.

### 6.4 Function Window Icons

Function Windows use the following icons to indicate various functions or states:

Icon	Description
	Closes the Function Window while leaving the function in the Active State.
	Maximizes Function Window and opens Status Bars.
	Minimizes Function Window and closes Status Bars.
	Selects the next tab left or right. Displays a gray background when no additional tabs are available to the left or to the right.
	Displays Running and a green circle when the simulation is running.
	Displays Ready and a gray circle when the simulation is stopped.
	Displays remaining battery capacity in %.

## 7 DEFINING PARAMETERS

### 7.1 Numeric Values

When a numeric data field is selected for editing, a group of data entry pop-up windows is launched which provides the following methods for defining the value:

- Numeric Keypad
- Single/Double Slider Bar

#### 7.1.A Numeric Keypad

The Numeric Keypad allows the user to enter a specific numeric value. A value is entered by pressing the numbers on the keypad. The value is enabled pressing the unit of measurement on the Numeric Keypad window.

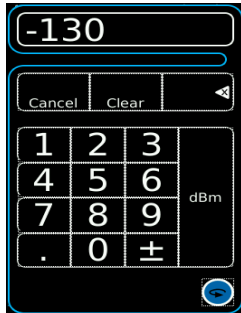






Fig. 5 Numeric Keypad

Icon	Description
	Pressing Cancel voids any un-entered changes and closes the group of data entry pop-up windows.
	Pressing Clear resets a numeric value to 0.
	Pressing Backspace deletes the last digit in the numeric value.
	Pressing Next Value Selection replaces the Numeric Keypad with the Data Slew Bar. Press again and the Numeric Keypad appears.



**7.1.B Data Slew Bar**

The Data Slew Bar incrementally selects specific data values by spinning the wheel. Selecting x10 increases the step increment by a factor of 10. Selecting /10 decreases the step increment by a factor of 10.

Select UP arrow to increase data value. Select DOWN arrow to decrease data value. Select CANCEL to void data entry.

Selecting Enter closes the Data Slew Bar.

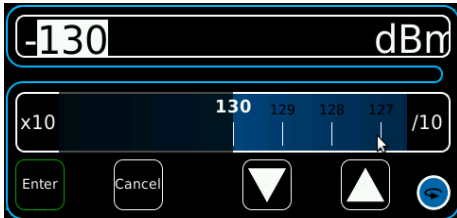


Fig. 6 Data Slew Bar

**7.1.C Drop-down Menu**

Drop-down Menus are used to list pre-defined variables. Selecting a Drop-down Menu opens the list of variables available for that field. The variable currently selected is displayed on the menu in bold. Drop-down Menus can be dragged up and down on the display in order to view long lists.

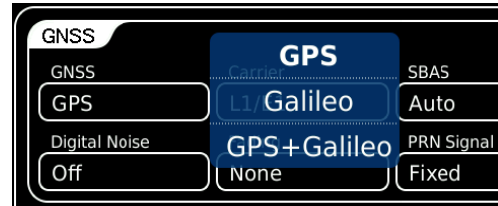


Fig. 7 Drop-down Menu

**7.1.D Selectable Units**

Some fields may have selectable units. For those fields identified, select the units field and a drop-down menu is displayed.



Fig. 8 Selectable Units

**7.1.E Locked Fields**

A small padlock symbol may be displayed against certain fields indicating that the field is locked and may not be edited or accessed (Fig. 9). Altitude field is locked when a simulation is running.



Fig. 9 Locked Field

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**8 SETUP/SIMULATION**

Perform the following steps to complete Setup:

STEP	PROCEDURE
1.	Press <b>Power On/Off</b> Key for a minimum of one second to power up test set.
2.	Select <b>Launch Bar</b> tab to display launch bar.
3.	Select <b>Setup</b> function key to display Setup Window.
4.	Select <b>I/O</b> tab to display I/O Setup Window. Confirm the following settings and change as necessary. <b>Loss:</b> Coupler Loss = Figure in dB marked on Antenna Coupler. Coupler Cable = Figure in dB marked on RF Coax Cable. Direct Cable = Figure in dB marked on RF Coax Cable. <b>Input/Output:</b> Ext Ref Out = OFF. Reference Source = INT. Trigger = Auto.
5.	Select <b>Simulation</b> tab to display the Simulation Setup Window. <b>GNSS:</b> GNSS = GPS, Galileo or GPS/Galileo.

STEP	PROCEDURE
	Carrier = L1/E1 or L5/E5. SBAS = Off. Simulation = Static. Digital Noise = ON (Direct) or OFF (Coupler). Fading = None. PRN Signal = Fixed. Position Source = User or GPS. <b>Simulation Start Time:</b> Clock = User Date = For optional entry of date Time = For optional entry of time <b>RF Output:</b> RF Level = For setting the output level of GPS generated signal RF Port = COUPLER (if using antenna coupler) or DIRECT (direct connect to GPS UUT). Units = Imperial or SI
6.	Select <b>Almanac</b> tab to open the Almanac Setup Window. Almanac Source = Default
7.	Select <b>Launch Bar</b> tab to display launch bar.

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- | STEP | PROCEDURE  |
|------|--|
| 8.   | Select <b>Simulation</b> function key to display Simulation Window.<br><b>PVT:</b><br>Latitude = For Optional entry of test Latitude<br>Longitude = For Optional entry of test Longitude<br>Altitude = For Optional entry of test Altitude |
| 9.   | Select <b>RUN</b> key to start simulation.   |
| 10.  | Select <b>STOP</b> key to discontinue simulation.  |

**NOTE:** Most GPS receivers expect ACTIVE antennas, supplying a DC voltage to the antenna connector. The GPSG-1000 has built in DC voltage blocking on the GPS TX PORT.

**CAUTION** GPS TX PORT: APPLIED DC SHOULD NOT EXCEED +50 V.

**NOTE:** Some receivers “sense” current draw on the DC supply to their active antenna. If there is no current drawn, they may assume that no antenna is connected. In such cases, the current draw must be simulated by some resistive load and perhaps a series inductor between the signal line and the ground. Such a device may need to be custom built, depending on receiver requirements.

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**9 POWER REQUIREMENTS**

The GPSG-1000 is powered by a removable 14.8 v 6.6 Ah Lithium Ion Battery. The battery charging circuit enables the operator to recharge the battery anytime the unit is connected to the AC Adapter. The GPSG-1000 can operate continuously utilizing the AC Adaptor.

The internal battery is equipped to power the GPSG-1000 for four continuous hours of use. When the battery needs charging the charge indicator illuminates a fast blinking yellow. The GPSG-1000 conserves battery power with the battery saver function. Closing the screen cover powers down the display. The battery should be charged every three months (minimum) or removed for long term inactive storage periods of more than six months.

**9.1 AC Power**

The AC Adaptor, supplied with the GPSG1000, operates over a voltage range of 100 to 250 VAC at 47 to 63 Hz. The battery charger operates whenever DC power (11 to 32 Vdc) is applied to the Test Set with the supplied AC Adaptor or a suitable DC power source.

If the supply voltage is <11 V, the unit switches to internal battery. If the voltage is >32 V, a 7 Amp resettable fuse on the DC input port opens, protecting the test set. Reset fuse by disconnecting and reconnecting the power cord to the unit.

When charging, the battery reaches an 100% charge in approximately four hours. The Battery Charging temperature range is 0° to 45° C, controlled by an internal battery charger.

<b>9.2</b>	<b>BATTERY RECHARGING USING GPSG-1000</b>
<b>STEP</b>	<b>PROCEDURE</b>
1.	Connect AC Line Cable to AC PWR Connector on the AC Adaptor and an appropriate AC power source
2.	Connect the AC Adaptor DC output to the DC POWER Connector on the GPSG-1000.
3.	Verify the BATTERY indicator displays blinking green.
4.	Allow four hours for battery charge or until the BATTERY Indicator displays a steady green.

<b>9.3</b>	<b>BATTERY RECHARGING USING BATTERY CRADLE</b>
<b>STEP</b>	<b>PROCEDURE</b>
1.	Connect AC Line Cable to AC PWR Connector on the AC Adaptor and an appropriate AC power source.
2.	Connect the AC Adaptor DC output to the DC POWER Connector on the Battery Cradle.
3.	Allow four hours for battery charge.

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