GENERAL DYNAMICS
Mission Systems

GPSS Operations Enabled

GLI-ECHO II (Ground)

Smart GPS Retransmission

Description

The GLI-ECHO II is a military grade, primary system LRU for GPS Retransmission. It will provide wireless or wired signal to all GPS enabled sub-systems on a ground vehicle platform. Designed for long term reliability, it is small, lightweight and built for limiting SWaP.

It is based on state of the art technology developed for permanent GPS retransmission in the Boeing C-17. GLI-ECHO II supports options not available in any other repeater and outperforms retransmission systems costing several thousand dollars more.

Features

- Military Ground Vehicle Applications
- GPS Bands: GPS L1, L2 (includes M-code)
- Precisely controlled and user adjustable output signal strength
- Automatic oscillation detection
- BIT and fault isolation
- Ability to directly connect to three GPS receivers
- NVG compatible
- Available in Single & Quad Output Configurations
- Power Always On or Power On/Off Configurations

Options

The GLI-ECHO II is available as part of a roll on/roll off or permanent installation kit. The kits are available with multiple options and supporting equipment to meet specific needs. Please contact GPS Source via phone, fax, email, or visit the website for further information on product options and specifications.

Basic Functions

AMPLIFIES & CONDITIONS THE SIGNAL

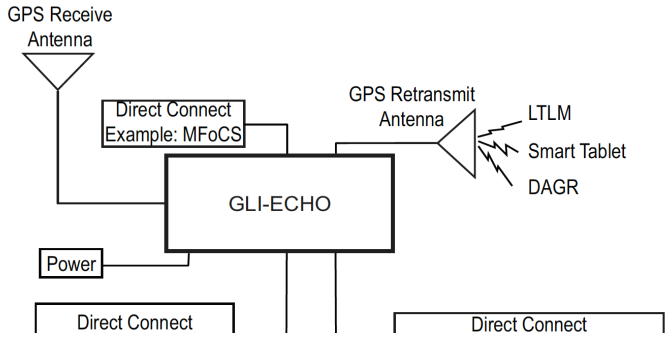
The GLI-ECHO II signal controller receives the GPS signals from a receive antenna and amplifies them to a level that is sufficient for retransmission of the signals throughout any small to large indoor space. The signals are retransmitted by a passive antenna installed within the enclosure.

SIGNAL SPLITTER

The GLI-ECHO II splits the signal equally between four ports. Any of the four output ports can be connected to a passive GPS antenna, transmitting the signal within the enclosure. More than one retransmission antenna may be necessary if retransmitting into a large ground vehicle.

DIRECT CONNECT OPTION

The GLI-ECHO II can be ordered with the "Direct Connect" option. This configuration allows the GLI-ECHO II to operate as a combined GPS retransmission controller and GPS signal divider to other GPS embedded systems. Any device requiring a direct connection to an external GPS antenna can utilize a signal being transmitted from the GII-ECHO II. Up to three output ports are available for direct connect to the signal. The fourth output port is set aside for wireless retransmission via passive GPS antenna.



BUILT IN TEST (BIT)

The GLI ECHO II performs a continuous built in test function. This monitors the status of coaxial cables to and from the device, the presence of GPS receivers on ports configured for direct connect, as well as the GPS signal levels and signal quality within the device itself. Real-time status indicators are provided on the user input panel.

REAL-TIME STATUS INDICATION

The GLI-ECHO II provides a status signal (XMIT OR FAULT) to the user input panel. It also has a diagnostic port that can be monitored by way of a RS232 or RS422 port in order to control and monitor the status of the system.

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Amplifier Specifications

Operating Temperature -54°C to 71°C

Parameter		Conditions	Min	Type	Max	Units
Operating Freqeuncies	**L1**	Ant: Output= 50 Ω	1560.42	157.42	1590.42	MHz
	L2		1212.60	1227.60	1242.60	
Input / Output Impedence				50		Ω
Operating Gain			6	33	49	dBm
Direct Connect Output Power				-150		dBm
Output SWR		Output= 50 Ω			2.1	--
Noise Figure					3	dB
RF Power		Output= 50 Ω	-85		-65	dBm

Electrical Specifications

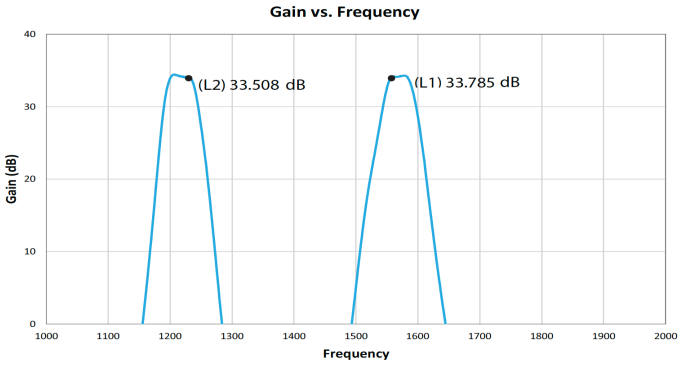
Parameter		Conditions	Min	Type	Max	Units
DC In		Powered Mil Connector	12		33	VDC
AC In	**110**	Wall Mount Transfer		110		VAC
Antenna In			12		28	V
Antenna Out				6.8		V
Antenna Current Thru J1		Load Current Range		20-70		mA
Operating Current		Excludes Antenna Current as 12V		610		mA
		Excludes Antenna Current as 28V		400		mA

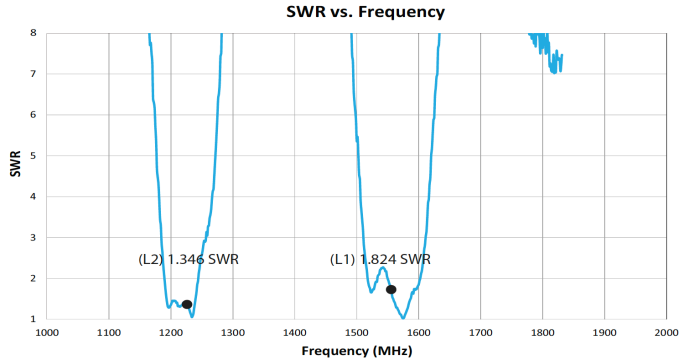
Environmental and EMI/EMC Requirements

The GLI-ECHO II has been designed to meet the following

Environment	MIL-STD-Requirements
Mechanical Vibration	810G Mtd 514.6, Proc. I
Functional Shock	810G Mtd 516.6, Proc. I & V
Explosive Atmosphere	810G Mtd 511.5, Proc. I
Crash Hazard	810G Mtd 516.6
High Temperature	810G Mtd 501.5, Proc. II
Low Temperature	810G Mtd 502.5, Proc. II
Temperature Shock	810G Mtd 503.5, Proc. I-C
Altitude	810G Mtd 500.5, Proc. III
Humidity	810G Mtd 507.5, Proc. II
Salt Fog	810G Mtd 509.5
Fungus	810G Mtd 508.6
Sand and Dust	810G Mtd 510.5, Proc. I & II
NVG Compatible	1572F Sec. 5.2.1.2.1.2
Display	1472 Sec. 5.2.6.7
Conducted Emissions	461F CE101, CE102
Radiated Emissions	461F RE102

Performance Data





Product Options

Type	Options
RF Connector	TNC (Default) Male and Female
	N Male and Female
	TNC (Female/Male)
Mil Power Connector	MIL-STD-1275

GLI-ECHO II (Ground)

Product Code Decoder

ECIIG - Q - PRWA - J2 - 422 - SF

ECIIG
GLI-Echo II

Outputs
Blank = Single
Q = Quad (4 outputs)

Ground Power
PWRA = Ground Power Always On
PWRO = Ground Power On/Off

Outputs
Blank = No Direct Connect
J2 = Direct Connect Port 2 (20dB)
J2XX = Direct Connect Port 2 (XX Custom attenuation 0 to +19dB)
J3 = Direct Connect Port 3 (20dB)
J3XX = Direct Connect Port 3 (20dB) (XX Custom attenuation 0 to +19dB)
J4 = Direct Connect Port 4 (20dB)
J4XX = Direct Connect Port 4 (20dB) (XX Custom attenuation 0 to +19dB)
J5 = Direct Connect Port 5 (20dB)
J5XX = Direct Connect Port 5 (20dB) (XX Custom attenuation 0 to +19dB)

Ex. J2-J3-J4 calls out Direct Connect for ports 2, 3, 4 J210-J310-J415 calls out Direct Connect for ports 2, 3, 4 and custom attentuation for each port

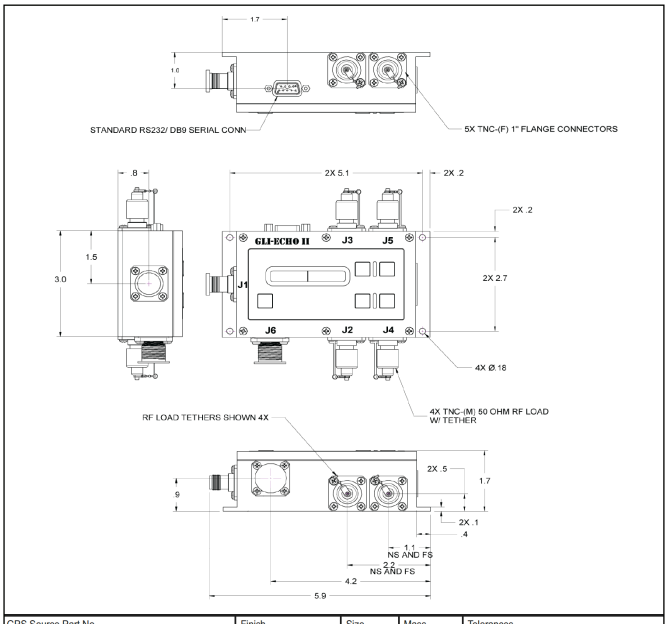
Connector Option
TF = TNC (Male/Female)
SF = SMA (Male/Female))
NF =N (Male/Female)

Data Connector
Blank = RS232
422 = RS422 Connector

Note: To have product/part codes customized to meet exact needs, contact GPS Source at sales@gpssource.com or visit the website at www.gpssource.com.

Mechanical Drawings

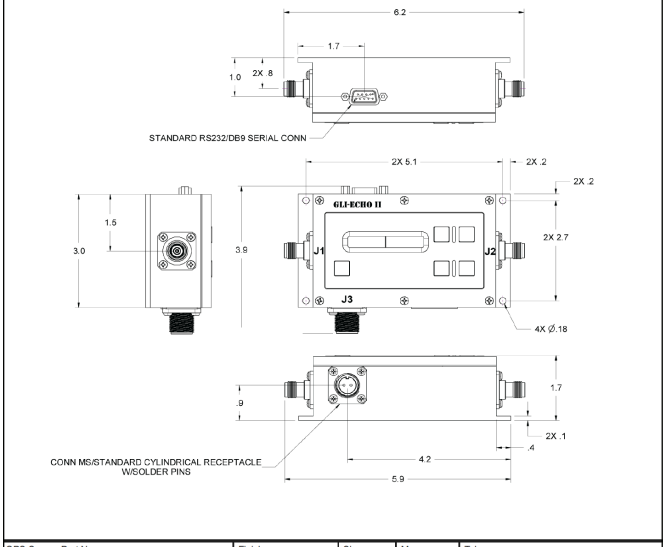
GLI-ECHO II Ground (1x4)



GPS Source Part No.	Finish	Size	Mass	Tolerances	
ECIIG-Q	MILITARY GREY	C	.59 lbs	Linear: .X = ± .1, .XX = ± .05, .XXX = ± .005	Angular: ±1° RADII See Linear
Description: ECHO II L1/L2 VARIABLE QUAD OUTPUT AMPLIFIER	Material: SEE BOM	3rd Angle Projection			

Dimensions are in inches unless otherwise specified. IAW ASME Y14.5M - 1994

GLI-ECHO II Ground (1x1)



GPS Source Part No.	Finish	Size	Mass	Tolerances	
ECIIG	MILITARY GREY	C	.59 lbs	Linear: .X = ± .1, .XX = ± .05, .XXX = ± .005	Angular: ±1° RADII See Linear
Description: ECHO II L1/L2 VARIABLE OUTPUT AMPLIFIER	Material: SEE BOM	3rd Angle Projection			

Dimensions are in inches unless otherwise specified. IAW ASME Y14.5M - 1994

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