

GPS500 / GPS501

GPS RF Only Boards

Introducing the GPS500 and GPS501 RF Boards

Key Features

- RF Downconverter and correlator
- L1 Frequency Band
- Plug-in Design
- Small and Light Weight
- Primarily Used with OSGPS Software

Hardware Description

The GPS500 board (shown to the right) contains both RF downconverter and GPS Correlator IC's. The GPS500 is used on many other GPS Creations boards such as the GPS1000, GPS1001, GPS1005, PC-104 etc. It is a plug-in board making it easy to reconfigure with a different design should one be needed.

The GPS501 board (shown on the reverse side of this document) is the RF L1 Band downconverter only. It is designed to work with FPGA, USB and other GPS soft-correlator designs.

Both GPS500 and GPS501 boards have an on-board 10 MHz. reference oscillator installed on the underneath side along with a bandpass SAW filter used in the IF chain. Both boards use the GP2015 Plessey/Mitel/Zarlink RF IC. The GPS500 board contains a GP2021 GPS correlator IC.

GPS Creations also makes a GPS550 board (not shown here) which is identical to the GPS500 pin-out, but it contains two RF IC's. See the GPS550 brochure for more information on this product.

OpenSource Software

These RF boards are intended for use in OpenSource GPS applications. However, their design is such that they may be used in other applications as well. The OSGPS source code is freely available to all and is used

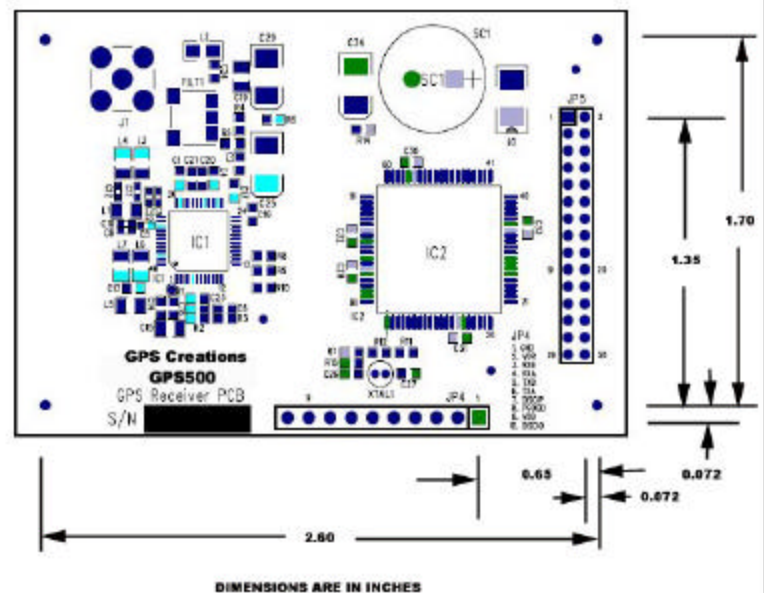


Top View of GPS500 Plug-in Board

primarily for educational purposes but can also be used in commercial applications.

Unique Features

- Plug-in board design
- Plessey code compatible
- Antenna LNA powered separately for current sense
- Easy access to all circuitry



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GPS501 L1 Band RF Down Converter

For OSGPS Development

The GPS501 L1 Band RF downconverter is shown to right. It is a plug-in board with isolation and driver circuitry included on-board. The 10 MHz. oscillator is included as well as the IF SAW filter. The GP2021 RF IC requires an off-board divider of the 40 MHz. clock to be fed back as the 5.7 MHz. Sampled Clock signal. The GPS501 board is designed to be used with a motherboard which may consist of a FPGA or CPU capable of performing the GPS correlation functions. The GPS501 uses both 5 and 3.3 volts DC for operation

The GPS501 downconverter has been designed for those wanting to design their own GPS receiver using FPGA correlators or use it with other experiments. Contact GPS Creations for a schematic and mechanical layout of the GPS501 board.



Top View of GPS501 RF Downconverter

STANDARD FEATURES

- GP2015 RF IC based solution
- Plug-in board
- 10 MHz. Oscillator included on board
- SAW Bandpass Filter
- Construction: Four-layer F4 glass epoxy material
- Antenna connector: MCX female standard.
Custom antenna connector on special order

PHYSICAL CHARACTERISTICS

Size:	GPS500	2.875 x 1.97 in.
	GPS501	2.92 x 1.45 in.
Height:	GPS500	0.475 in.
	GPS501	0.35 in.
Weight:	GPS500	113g (4 oz.)
	GPS501	50g (2 oz.)
Power Consumption:		
	GPS500	75 mA max @ 5 volts
	GPS501	50 mA max @ 5 volts
Operating Temperature:		0° to 55° C

TECHNICAL SPECIFICATIONS

- External 5 volt DC Regulated Voltage Required
- L1 band (1575.42MHz) operation
- RF Sensitivity: -135dBm for tracking (GPS500 Board)
- The GPS500 and GPS501 uses all RoHS compliant components.

Warranty: One year parts and labor FOB Germantown, TN
(Condition must be as original and unmodified)

ORDERING INFORMATION

RF/Correlator Board	Part Number - GPS500
RF Downconverter only	Part Number - GPS501
GPS Antenna for use with either GPS500 or GPS501	Part Number - GPS1010

Visit us on the web at gpscreations.com for more information



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