GPS100SC

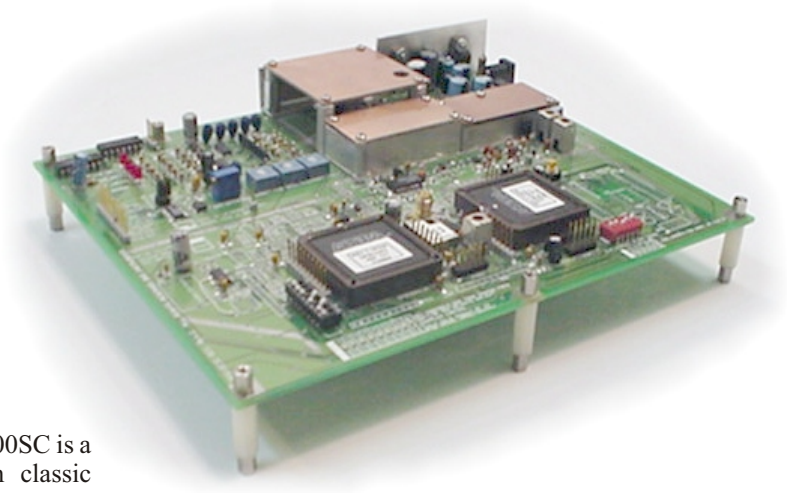
Single Channel GPS Receiver

Introducing the GPS100SC Single Channel Receiver for educational, engineering , scientific and R&D applications

Key Features

- Open Architecture
- Simple Operation
- No Computer Needed to Track SV

DKD Instruments



All New Design

The all new GPS100SC is a modern retake on classic GPS receiver design. With its hybrid mix of Analog and Digital techniques it Acquires and tracks the selected GPS signal *without* the use of a host computer. It's all done with hardware. The user simply sets a 5 position dip switch to the SV they wish to track and the hardware takes over.

Simple is Beautiful!

The real beauty of the design is its simplicity and openness. Most GPS receivers are strictly proprietary and the details are purposefully hidden to keep you in the dark about how GPS receivers *really* work. Not this one. Its wide open. Every test point used in debugging the design , was left in place for the student and experimenter. Extensive silk screening on the PCB details the many test points.

Mix of DSP and Analog

Almost all GPS receiver designs have some Analog parts. This design is a mix of DSP and Analog methods. It has portions of the tracking loops done in DSP. This kept the size of the design manageable and brings a contemporary feel to the GPS100SC design.

Stepping Stone

If you master the operation of the GPS100SC receiver you will lay the foundations needed to understand multichannel all digital designs. The key to understanding GPS receivers is to start simple and work your way up, not the other way around! An added final benefit: Getting a firm grip of GPS receivers inner workings will also lay the ground work for understanding all CDMA communication systems.

Special Applications

For those looking for getting at key GPS signals for special applications the GPS100SC offers access most receivers have long abandoned. Take the correlated carrier for example. On digital receivers its just *gone*. On the GPS100SC the correlated carrier is a test point on the 10.7Mhz IF strip. The raw demodulated 50Hz data stream its also easily accessed.

Text Included

With every system a copy of the text "Principles of GPS Receivers, a Hardware Approach", by Dan Doberstein will be included. The text covers GPS theory, receiver design and operation as well as experiments tailored for the GPS100SC receiver.

Rev. C

GPS100SC

STANDARD FEATURES

L1Band (1575.42MHz) Operation

C/A Code (1.023MHz) Chip Rate

Active Antenna Support, 5VDC @ Center Cond.

50Hz Data and 50Hz Data Clock Output

PHYSICAL CHARACTERISTICS

Size : 7in wide x 8.75in long ,Open PCB

Weight : 12oz.

Power Consumption: 500ma @ 9vdc

Operating Temperature: 0 to 40 degrees C

TECHNICAL SPECIFICATIONS

RF Sensitivity: -135dBm for tracking

C/A Code Track Resolution: 1/20 Chip

C/A Code Loop: Digital Control/Analog Sense

C/A Scan Rate: ~12Chips/Sec

Doppler Track Resolution:. <15Hz

Doppler Loop: Analog Control/Digital Sense

Doppler Scan Rate: ~37Hz/Sec

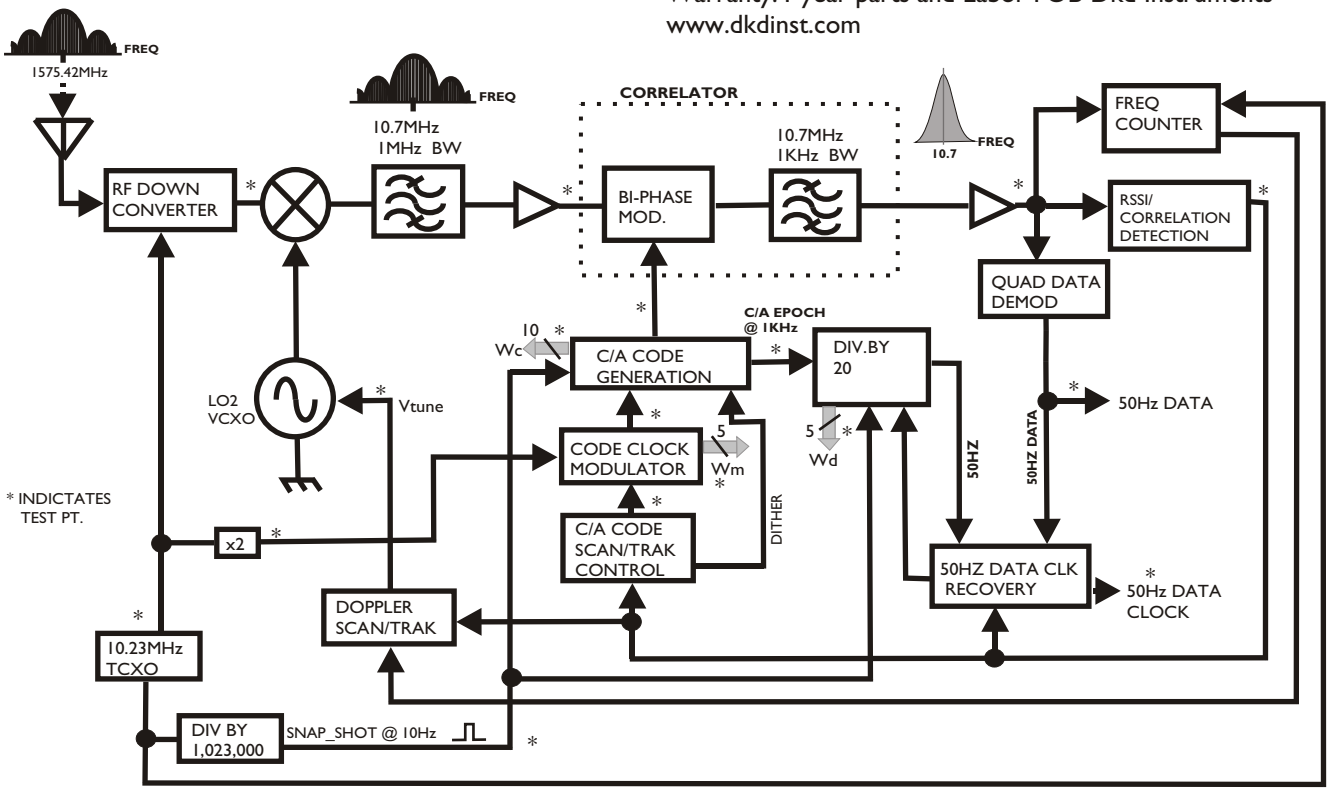
SV CLK Recovery: 0 to 20msec@ 48.875nsec/LSB

Average time to Acquire& Track SV: ~2.5min.

Antenna In: Female SMA

ORDERING INFORMATION

Standard GPS100SC Part # GPS100SC
Ext. 1st LO (LO@1/2freq) Part#GPS100SC-XLO
Ref. Clk Phase Ctrl@48nsec/LSB Part#GPS100SC-RCP
Warranty: 1 year parts and Labor FOB Dkd Instruments
www.dkdinst.com



BLOCK DIAGRAM OF GPS100SC RECEIVER

REV.B

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