



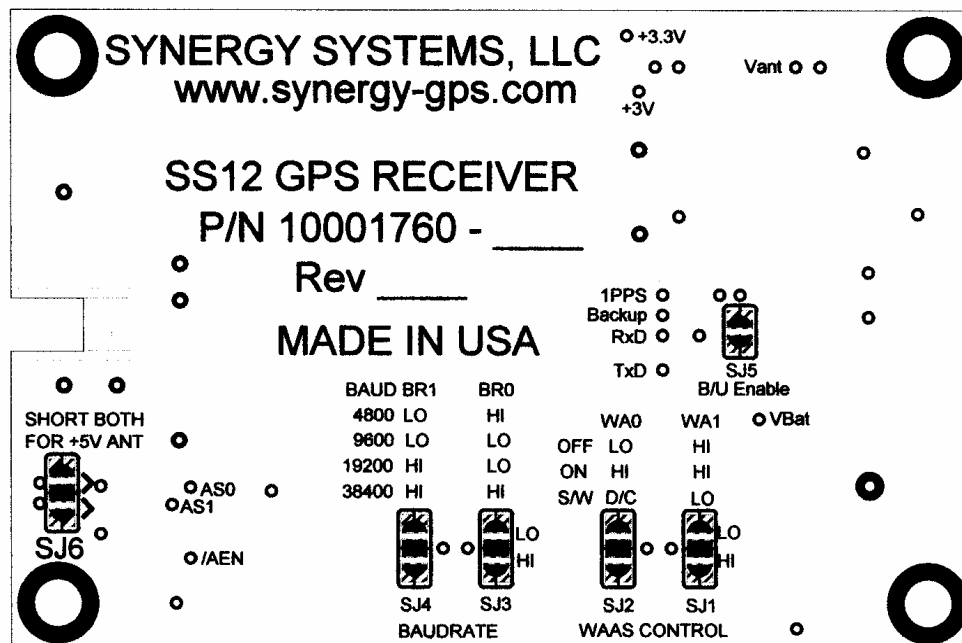
## SS12 GPS Receiver User's Guide

The Synergy Systems SS12 GPS receiver module consists of a Sony GXB5005 miniature 12-channel GPS module along with all of the support circuitry necessary to operate. The SS12 assembly allows the GXB5005 to directly replace M12 series receivers in NMEA positioning applications. Connector pin-outs and power/data requirements are identical to those of the M12.

Five solder jumpers on the top side of the PWA allow for user selection of default parameters. These include selection of the backup power mode, default communications baud rate, and default WAAS/EGNOS configuration.

### Physical Layout

The graphic below shows a greatly magnified topside view of the SS12 board. Actual size of the board is 40 x 60mm. Included on the topside of the board are 6 solder jumpers that may be used to change the operating characteristics of the receiver. There are also several test points that allow the user to troubleshoot or monitor operation of the receiver. All jumpers and test points are called out in the silkscreen. Use of these features is detailed on the next page.



## Solder Jumpers

- SJ1 and SJ2:** Together, these two jumpers control the operation of the WAAS/EGNOS function. As shipped from the factory, both SJ1 and SJ2 are jumpered to the HI pad, resulting in WAAS/EGNOS operation with automatic satellite selection.
- User Options:** To disable the WAAS/EGNOS function, remove the solder jump tying SJ2 to HI and form a new solder jump tying SJ2 to the LO pad.
- To switch to software control, tie SJ1 LO. SJ2 is a Don't Care (D/C) if SJ1 is LO. Use the Sony @WA command to control the WAAS function.
- SJ3 and SJ4:** Together, these two jumpers control the default baud rate of the SS12 receiver. As shipped from the factory, SJ3 is jumpered to the HI pad, and SJ4 is jumpered to the LO pad, resulting in 4800 baud communications. As you can see from the silkscreen, using the solder jumps the default baud rate may be changed between 4800, 9600, 19200, and 38400 baud. The baud rate may be changed later using the Sony @CB command.
- SJ5:** SJ5 is used to enable backup power to the receiver. This jumper should normally always be in place, but may be removed if needed for special situations such as receiver testing.
- SJ6:** SJ6 actually consists of two jumpers. When the SS12 is being supplied with +3V for antenna bias these jumpers should be open so that the bias overload control circuitry on the SS12 will operate properly. If +5V is used as an antenna bias, both SJ6 jumpers should be shorted, otherwise the overload control will not function

## Test Points

There are 11 test points on the SS12 receiver board, most of them allow the user to monitor the 10 pin power/data connector on the bottom side of the board. Definitions are as follows:

- TxD - Pin 1 of the power/data header - data out
- RxD - Pin 2 of the power/data header - commands in
- +3V - Pin 3 of the power/data header, the +3V supply to the SS12 board
- 1PPS - Pin 4 of the power/data header
- Backup - Pin 6 of the power/data header, optional backup to receiver RAM
- $V_{ant}$  - Pin 9 of the power/data header, the antenna bias supply
- +3.3V - Output of the +3.3V switching regulator that powers the GXB5005
- $V_{bat}$  - Battery voltage monitor on -2 versions of the SS12 with onboard battery
- AS0 - Antenna sense input 0
- AS1 - Antenna sense input 1
- /AEN - Antenna bias control - low during normal operation, high during overload