

COMPLETE  
GPS FLIGHT  
TRACKINGSMOOTH  
WAYPOINT  
TRANSITIONSREDUCED PILOT  
WORKLOADENHANCED  
AUTOPILOT  
FUNCTIONALITY

# GPSS

## Affordable GPS roll steering for general aviation

**Complete GPS Flight Tracking:** Interfaces with GPS to fly pre-programmed flight plans hands-free.

**Smooth Waypoint Transitions:** Calculates turn initiation point to fly from centerline of current leg to centerline of new leg, enabling autopilot to fly a precisely-curved transition path between legs.

**Reduced Pilot Workload:** Eliminates need to set course arrow or heading bug at leg changes.

**Enhanced Autopilot Functionality:** Fully-interoperable with any existing S-TEC model autopilot.\*

# GPSS

## Get from point A to point E hands-off with GPSS

The GPSS interfaces with the composite roll steering commands output by GPS navigators to fly a complete, pre-programmed flight plan—hands off.

If the GPS database includes instrument approach procedures, the flight plan can also include an approach to the destination airport. GPSS is available as a standard feature on the System Fifty-Five X autopilot, and is also available as an upgrade to any existing S-TEC autopilot.\*

### What is it?

In the past, general aviation autopilots flew navigational flight paths by either “tracking” or “coupling to” CDI or HSI needle deflections. This resulted in some unintentional wandering, particularly at station passage, due to needle deflection variations and noisy signals.

Pilots of “big iron” have enjoyed the benefits of roll steering since the early 60’s through the functional output of Inertial Navigation System (INS). Their flight management systems output roll steering commands to the autopilot for all of the leg types typically encountered in instrument flying. Roll steering commands are inherently more accurate and fly the aircraft much more precisely as they are based on known location, flight path, ground speed, and anticipated maneuvers.

### How does it work?

As opposed to “tracking”, which essentially is reacting to signal input, GPSS anticipates course changes. When approaching a waypoint, for example, GPSS transitions to a new leg by anticipating arrival at the waypoint, and initiating a coordinated turn so that the aircraft is established on the new heading without overshooting or under-shooting the new course.

In aircraft equipped with a GPS navigator that outputs composite roll steering commands, the pilot can delegate steering of the aircraft for enroute or approach flight directly to the navigator. In enroute flight, GPSS will fly the desired flight path as defined by the flight plan stored in the GPS, very accurately, since the GPS not only knows exactly where it is, but where it’s going.

As the leg changes are anticipated, the GPS navigator calculates the exact turn initiation point required to fly from the centerline of the current leg directly on to the centerline of the new leg, based on the ground speed of the aircraft. It then sends steering commands to the GPSS function, and the autopilot flies a precisely curved transition path between the legs.

In addition to more accurate course tracking, GPSS significantly reduces the pilot’s workload by not having to set the course arrow or heading bug at leg changes (although many pilots may make those setting changes for enhanced situational awareness).

### GPS & GPSS - now and in the future

Almost all general aviation GPS systems output composite roll steering commands for enroute navigation and limited approach transition procedures such as DME arcs. In addition, GPS system manufacturers typically include full procedure approaches, transitions to approaches, procedure turns, holding patterns, and more in their databases and software.

If your current GPS does not output roll steering, GPSS-equipped S-TEC autopilots track or couple to GPS flight paths using normal NAV and APR modes. Whatever the capabilities of your GPS system, GPSS can fly it...now and in the future.



*To save valuable panel space, the GPSS converter is configured as a separate panel-mounted switch and remotely-mounted control box. The control switch is 1.32 x .82", and projects only 1" behind the panel (plus cable connector).*

### Retrofitting GPSS to existing autopilots

Consistent with our long standing building-block philosophy, and our policy of not obsoleting our customers’ autopilots, GPSS is available as an add-on module for any existing S-TEC model autopilot.\*

Your authorized Genesys Aerosystems autopilot dealer installs and interfaces the GPSS converter to the existing autopilot’s heading function. The lighted panel switch selects GPSS or Heading mode. Note that if a valid roll steering command is not available, GPSS will not activate, and this will be indicated by a flashing GPSS light.

\*Please check STC list for applicability



PRECISE PERFORMANCE.  
PROVEN EXPERIENCE.  
PERSONALIZED ATTENTION.