Zeli Systems

SLOTLESS GPS ADAPTER (SGA)

Stack & Track

No Backplane Slots Required

The Universal GPS Packaging Solution

Features:

- Low cost packaging for modular GPS receivers.
- Uses no backplane slots.
- Versions available for Navman Jupiter, Trimble SK2/SK8, Trimble ACEII/ACEIII, Canadian Marconi SuperstarII, and Motorola M12/VP/GT/UT ONCORE GPS receivers.
- Installs in a 3.5" disk drive bay.
- Operates from disk drive power connector.
- Provides four serial communication connectors that can be configured by the user to interface with the GPS receiver.
- Uses a 1 Farad capacitor to retain almanac, ephemeris, and real-time clock of the selected GPS receiver.
- Time Pulse (1PPS) output provided on an unused pin of each serial communication connector. Differential 1PPS also available.
- Fiber-optic options available for secure communication and lightning protection.
- Mounting hardware provided.
- Optional stand-alone enclosure or wall mount power supply.

SGA Function: The SGA provides GPS packaging for any computer with space to accept a 3.5" disk drive. The SGA can be configured to accept a Navman Jupiter, Trimble SK2/SK8, Trimble ACEII/ACEIII, Canadian Marconi SuperstarII, or Motorola M12/VP/GT/UT ONCORE GPS receivers. The selected receiver plugs into the SGA, and then the assembled unit simply fastens to the frame in a 3.5" or 5.25" disk drive bay. The TTL communication signals for the selected receiver are converted to either single-ended RS-232 or differential RS-422 voltage levels via one of the serial port connectors located on the SGA. A keep-alive voltage is generated by using a large value capacitor (1 Farad) to maintain

the almanac, ephemeris, and real-time clock of the selected receiver. To begin operation, a serial cable need only be connected between the SGA and a port on the user's controller.

Power: The SGA operates from +5V available on a typical disk drive power connector. A +12V option is available that allows the SGA to operate from a wall mount power supply.

Serial Ports: The selected GPS receiver may require up to two TTL serial communication channels. There are four serial port connectors located on the SGA that can be used to communicate with the selected GPS receiver. SGA serial connectors P1 and P2 can provide RS-232 or RS-422 signal conditioning for the two GPS receiver channels. Signal configuration for P1 and P2 (RS-232/RS-422) is performed with a simple push-on jumper. P1 and P2 pin assignments are designed to match a DB-9 connector found on a PC, so that inexpensive ribbon cable can be used for the serial cables. Two additional SGA serial connectors are available for special user requirements. Serial TTL data received at SGA connector P23 is Ored with P1 data so GPS receiver control can be shared. Transmit and receive pins on SGA connector P3 can be configured by the user. This allows the SGA to also be used for nonstandard serial pin assignments.

Mechanical Considerations: The SGA installs easily in a 3.5" disk drive bay. The SGA will also fit a 5.25" opening when used with an inexpensive 3.5"-to-5.25" frame adapter. A disk drive power connector is located at each end of the SGA. This allows the assembled unit (SGA and selected GPS receiver) to be oriented in the disk-drive bay so that cables may be internal or external to the computer enclosure, depending on user requirements.

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FIBER-OPTIC OPTIONS

The SGA can be configured with Fiber-Optic options to satisfy lightning protection and secure communication requirements. Options are available to communicate with the GPS receiver and to transmit the Time Pulse (1PPS). Each option requires two SGA's configured in an outside/inside pair. The "outside" SGA is typically

mated with a GPS receiver and is located near the GPS antenna. The "inside" SGA would be in a distant computer or enclosure. The "inside" SGA is not mated to a GPS receiver, but serves as a fiber-to-copper converter. Up to two channels of serial data from the "inside" SGA may be directed to a local controller using RS-232, RS-422, or TTL levels.

Fiber-Optic Serial Communication Option: An SGA configured with this option is capable of providing two RX/TX fiber channels. This option uses two pair of inexpensive Hewlett-Packard versatile link RX/TX devices. These units operate at distances up to 90 meters and are designed for use with plastic fiber. Each receiver is positioned next to a transmitter on the SGA so that simplex or duplex interconnections may be used. SGA units equipped with this option may also be used for serial communication within tall buildings or ships.

Fiber-Optic Time Mark Pulse (1PPS) Option: This option uses the Hewlett-Packard HFBR 1412/2412 transmitter and receiver pair. These devices function at distances up to 3.5 km and are designed for use with glass fiber.

Custom Requirements: Zeli Systems can package or modify the SGA for unique customer requirements.

SPECIFICATIONS

Mechanical, Environmental, Power:

Mechanical:	Installs in 3.5" disk drive frame
Dimensions:	4.000" x 5.050"
Operating Temp:	0°C to 55° C
Extended Temp:	-40°C to 85° C
Relative Humidity:	<90% (non-condensing)
Power wo fiber:	+5V +/- 5%, 0.1 A, without GPS receiver
Power with fiber:	+5v +/- 5%, 0.25 A, without GPS receiver

Connectors:

Serial Port 1,2: P1, P2
    Conn: Jumper configured RS-232/RS-422 serial ports
    Type: 0.1"x0.1", 10-pin, double-row male header
Serial Port 3: P3
    Conn: User configured port
    Type: 0.1"x0.1", 10-pin, double-row male header
Serial Port 4: P23
    Conn: TTL port
    Type: 0.1"x0.1", 10-pin, double-row male header

Power Connectors:

Power (standard): P20, P24
    Conn: Molex 53109-0410
    Type: Right angle disk drive power conn

Power (+12V option): P22
    Conn: Switchcraft RAPC712
    Type: Right Angle DC Power

Fiber-Optic Option Connectors:

Receive connector for Time Mark (1PPS)   RX1
    Conn: Hewlett Packard HFBR2412
    Type: Right angle PC mount ST

Transmit connector for Time Mark (1PPS)   TX1
    Conn: Hewlett Packard HFBR1412
    Type: Right angle PC mount ST

Receive connector for Port 1 and Port 2   RX2, RX3
    Conn: Hewlett Packard HFBR2523
    Type: Versatile Link PC mount right angle

Transmit connector for Port 1 and Port 2   TX2, TX3
    Conn: Hewlett Packard HFBR1523
    Type Versatile Link PC mount right angle

Antennas, RF Cables, and Adapters: Call

Ordering Information:
Configured for Trimble SK2/SK8 (Lassen):
  SGA-LS   RS-232 on P1 and P2
  SGA-LD   RS-422 on P1 and P2
  SGA-LSD   RS-232 on P1and RS-422 on P2 (RTCM)
Configured for Trimble ACEII/ACEIII:
  SGA-TS   RS-232 on P1 and P2
  SGA-TD   RS-422 on P1 and P2
  SGA-TSD   RS-232 on P1 and RS-422 on P2 (RTCM)
Configured for Rockwell Jupiter or Canadian Marconi SuperstarII:
  SGA-JS   RS-232 on P1 and P2
  SGA-JD   RS-422 on P1 and P2
  SGA-JSD   RS-232 on P1 and RS-422 on P2 (RTCM)
Configured for Motorola M12/VP/GT/UT ONCORE:
  SGA-MS   RS-232 on P1
  SGA-MD   RS-422 on P1

Fiber-Optic Serial Communication Option:
Add (FOS) suffix, Example: SGA-TS-FOS

Fiber-Optic Time Mark (1PPS) Option:
 Add (FOT) suffix, Example: SGA-TS-FOS-FOT

+12V option
 Add (12) suffix, Example: SGA-TS-FOS-FOT-12

Wall-mount power supply
 Add (WM) suffix, Example: SGA-TS-FOS-FOT-12-WM

Licensing available with turn-key documentation package.