GeoStamp® Audio

GPS to Audio Encoder

Description

GeoStamp® Audio converts GPS receiver latitude, longitude, heading, speed, altitude, date, and time into a continuous audio stream that can be recorded by devices such as video camcorders. The audio output track, matched with the video recording, translates into an exact, permanent record of where and when events occur. The GeoStamp® Audio RS-232 serial output is a reconstruction of the original NMEA 0183 GPRMC and GPGGA sentences from the GPS receiver. This serial output can be used by numerous applications such as computer based GPS mapping software. GeoStamp® Audio supports all NMEA 0183 compatible GPS receivers such as the Garmin GPS35-PC.

GeoStamp® Audio includes a cigarette plug, wall transformer, and null-modem serial cable.

Specifications

Dimensions:	4.25" x 3.50" x 1.25"
Weight:	6.5 oz.
Input voltage:	8.0 to 14.0 volts DC (20 ma max.)
DC jack:	2.1 mm x 5.5 mm, center tip positive
Operating temperature:	-10 C to +70 C
GPS input:	NMEA 0183 4800 baud GPRMC and/or GPGGA sentences
Serial output:	4800 baud, 8 data bits, no parity, one stop bit
Audio modulation:	FSK
Audio output level:	-10dB +/- 1dB
Audio input level range:	-40.0 to -8.0 dBV
Acceptable audio signal to noise ratio:	20.0 dB

Connections

GeoStamp® Audio has four connectors (see figure 1.0.)

Connector	Hookup
AUDIO IN	• Only used for decode mode • Attach to the audio output source that will play back the previously recorded GPS audio stream
AUDIO OUT	• Only used for encode mode • Attach to an audio recording device such as a video camcorder external microphone, left or right audio input
GPS / PC	• For encode mode attach to the GPS receiver RS-232 serial output • For decode mode use the supplied null-modem cable attached to a computer RS-232 serial port
DC IN	• +8 to +14 volts DC • 2.1 mm x 5.5 mm DC coax plug, center tip positive

Configuration

GeoStamp® Audio has two configuration options, both are on the circuit board. To open the enclosure remove the two back screws, remove the panel and bezel, and slide the circuit board out.

GPS sentence selection

GeoStamp® Audio uses two internal jumpers to select which NMEA 0183 GPS sentences (GPRMC and/or GPGGA) will be encoded. The sentence encoding rates are once per second so if both jumpers are installed (default) then the GPRMC sentence is encoded, followed by the GPGGA sentence the next second.

Audio output level adjustment

The audio output of level of GeoStamp® Audio can be adjusted via the output level pot VR1. GeoStamp® Audio support both mic and line level outputs. Adjust the audio output level to match your recording device.

Operation

Both encoding and decoding modes require a 8-14 VDC source. A cigarette plug is supplied for field use and a wall transformer for office use.

Encoding mode

GeoStamp® Audio defaults to encoding. Upon applying power GeoStamp® Audio scans for GPS NMEA 0183 data from the GPS receiver which must be connected to the GeoStamp® Audio GPS / PC serial jack. The resulting audio encoded GPS data is sent through the GeoStamp® Audio AUDIO OUT jack.

Decoding mode

Attach the supplied null-modem cable from GeoStamp® Audio GPS / PC serial jack to a computer RS-232 serial port. The RS-232 protocol is 4800 baud, 8 data bits, no parity, and one stop bit. To enter the decoding mode hold down the GeoStamp® Audio DECODE button on the front panel and apply power to GeoStamp® Audio. Continue holding the DECODE button for 3 or more seconds and then release. While valid encoded audio is received on the GeoStamp® Audio AUDIO IN jack the reconstructed NMEA 0183 GPRMC and GPGGA sentences are sent out the GeoStamp® Audio GPS / PC serial jack.

Fig 1.0 - Back view of GeoStamp® Audio.

Trouble Shooting Tips

Problem	Solution
Green LED off (won't power up)	• Verify power supply output (8 to 14 VDC). • Verify polarity of supply. • Verify the 250 ma internal fuse is good.
No encoded audio is generated (only a constant tone is generated from the audio out jack)	• Verify encode mode selected. • Verify valid GPS signal is being received.
No serial output is generated in decode mode	• Verify decode mode selected. • Verify valid encoded audio being received. • Adjust the encoding audio output level (VR1).

Warranty & Service

If the product fails to perform as described in our product description or specification, within 90 days from the date of shipment to the buyer, we will repair or replace the product and/or accessories originally supplied. Failure due to improper installation, misuse, abuse or accident is not covered by this warranty. Incidental and consequential damages are not covered by this warranty. The buyer must obtain a Return Material Authorization by calling (248) 524-1918, and shipping the defective product to Intuitive Circuits, 2275 Brinston, Troy, MI 48083, freight prepaid. After the warranty expires, we will promptly supply an estimate for the repair cost.

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