

Green Light Labs GPS-710

Additional GPS-710 information: <http://www.greenlightlabs.com/gps-710>

Step 1: Clean the mounting surface of the GPS-710 and the Operation Panel with the alcohol wipe provided in the kit. Allow the surfaces time to air dry before proceeding.

Step 2: Included in the kit are several pieces of 1¼" mounting tape. Avoid touching the exposed surface of the mounting tape. Do not remove the red colored backing from the tape until instructed. This is "very high bond" tape that is specifically designed to adhere to ABS plastic across a wide temperature range.

Step 3: Take one piece of the 1¼" tape, remove the white backing, and lightly place the first piece as shown in Figure 1. The bottom edge covers the top half of the "COM" label and stays clear from the rounded edge of the Operation Panel.

Step 4: Locate and lightly place the second piece of tape such that GPS-710 will completely cover both pieces of tape, compensating about 1/8" for the curvature of the GPS-710 edges. Hold the GPS-710 up to the edge of the Operation Panel and confirm the location. The recommended position for the second piece of tape leaves only the "3X" exposed in the upper right "3X8 MAX" label on the Operation Panel. See Figure 1 for an example.

Step 5: After confirming the location of the tape, with your fingertips, firmly press the tape into the contours of the Operation Panel body.

Step 6: Align the GPS-710 with the Operation Panel's RJ45 and serial holes (see Figure 2). The GPS-710 should be positioned slightly above the COM port recess. When correctly oriented, the RJ45 jacks on the GPS-710 will be nearest the Operation Panel. The "GPS-710" label should face to the right when observed from the front of the Operation Panel.

Step 7: Remove the red backing from the mounting tape, align the device like in step 6, and press the GPS-710 firmly onto the tape. Rock the GPS-710 from side to side while pressing to improve the adhesion.

Step 8: Bend the data jumper, gently by hand, into a U shape before connecting into the radio and device. The data jumper is bent before being crimped, and can tolerate the relatively sharp bend that's required. When properly shaped, the data jumper should slide into both RJ45 sockets without any additional bending. It's easiest to insert the data jumper into the GPS-710 and the Operation Panel at the same time.

Step 9: Insert the serial jumper into the GPS-710 and the Operation Panel; allowing the cable to bend upward as necessary.

Step 10: Insert the data cable from the TX/RX Unit into the GPS-710's open RJ45 socket.

NOTE: The mounting tape provided in the installation kit is a specialized "high bond" tape that's designed to hold plastics together, even under the extreme temperatures seen with mobile installation. These types of adhesives create bonds that get stronger with time. Under normal temperatures, it takes roughly 24 hours to reach full adhesion.

TM-D710 Radio Configuration

Enter menu mode **[F], Tuning** and select the APRS category. Change "GPS Port" settings (menu 602) as follows:

- BAUD RATE: 4800bps
- INPUT: GPS
- OUTPUT: OFF (use WAYPOINT if you have another device attached to the 2.5mm pass-through port on the GPS-710)

To transmit accurate position information, verify "Beacon Information" settings (menu 606) as follows:

- SPEED: ON
- ALTITUDE: ON
- POSITION AMBIGUITY: OFF

The GPS-710 will automatically update the D710's internal clock. For accuracy, enter menu mode **[F], Tuning** and select the AUX category.

- Change "Time Zone" settings (menu 526) to your current time zone

To verify that the GPS-710 is functioning correctly, place the radio into APRS mode by toggling the **TNC** hotkey (below the power button) until APRS12 (or APRS96) appears in the upper left of the Operation Panel's screen. Once in APRS mode, a "GPS" indicator should appear in the upper right of the screen. The "GPS" text should start blinking (meaning GPS lock has been achieved) within 60-120 seconds. If the indicator does not blink, verify the menu settings and check that all cable connections are fully seated. If, after checking the settings and connections, the indicator still does not blink, try moving the GPS-710 to a different location.

For detailed APRS setup and configuration instructions, please refer to the TM-D710 instruction manual and the 11-APRS-E.pdf on the CD-ROM.



Figure 1: Tape Size and Placement



Figure 2: Device Position

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General Specifications

Operating Temperature Range	-20C to +60C -4F to +140F
Voltage Requirement	5VDC to 16VDC (negative ground)
Power Requirement	0.2 watts
Dimensions (W x H x D)	40mm x 48mm x 36mm 1.625in x 1.872in x 1.5in
Compliance	CE, FCC Class B, RoHS, REACH

GPS Engine Specifications

Chipset	SiRF Star III/LP Single
Baud Rate	4800 baud @ RS-232 levels (4800-N-8-1)
Output Message	NMEA 0183: GGA, GSA, GSV, RMC, VTG, GLL
Channels	20
Sensitivity	-159dBm
Position Accuracy	10 meters, 2D RMS 5 meters, 2D RMS, WAAS enabled
Datum	WGS-84

Limited Warranty on amateur radio accessories: Green Light Labs, LLC (GLL) warrants its amateur radio accessories with a two (2) year limited warranty, starting from the date of purchase of the original owner. This warranty is enforceable only by the original owner.

What is covered by this limited warranty: This limited warranty covers defects in materials and workmanship in all GLL amateur radio accessories. This limited warranty does not cover damage, reduction in function, failure, or loss resulting from:

- Exposure to solvents, corrosive materials, water, or other elements
- External causes such as accident, abuse, misuse, or problems with electrical power
- Servicing not authorized by Green Light Labs, LLC
- Usage that is not in accordance with product instructions
- Products for which Green Light Labs, LLC has not received payment
- Shipment of the product (claims must be presented to the carrier)

What GLL will and will not pay for: GLL will pay for labor and material expenses for items covered by this warranty. If it is necessary to ship items to GLL for warranty service, you are responsible for these shipping charges. GLL will pay the return shipping charges if the product is repaired or replaced under warranty. You are responsible for any additional expenses incurred by you when service is required (ex. removal, reinstallation).

Exclusion of damages: GLL does not accept liability beyond the remedies provided for in this limited warranty or for consequential or incidental damages, including, without limitation, any liability for third-party claims for damages or for products not being available for use. GLL liability will be no more than the amount you paid for the product that is the subject of a claim. This is the maximum amount for which GLL is responsible.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state (or jurisdiction to jurisdiction). GLL's responsibility for malfunctions and defects in hardware is limited to repair and replacement as set forth in this warranty statement. All express and implied warranties for the product, including but not limited to any implied warranties and conditions of merchantability and fitness for a particular purpose, are limited in time to the term of the limited warranty period reflected on your packing slip or invoice. No warranties, whether express or implied, will apply after the limited warranty period has expired. Some states do not allow limitations on how long an implied warranty lasts, so this limitation may not apply to you. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

What do I do if I need warranty service: All items sent to GLL must have a valid RMA number before they will be processed. Before the warranty expires, please contact GLL via email (service@greenlightlabs.com) to receive your RMA number. Please include your full name, phone number, email address, invoice number, and a description of why the product needs to be returned. GLL reserves the right to reject any package if the RMA number is not clearly visible on the package when received. You must insure the shipment or accept the risk of loss or damage during shipment.

Information required by the FCC: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer

Information required by the European Union: This equipment complies with the requirements for CE marking when used in a residential, commercial, vehicular, or light industrial environment. GLL hereby declares that this device is in compliance with the essential requirements and other relevant provisions of the EU Directive 1999/5/EC. The declaration of conformity and other compliance documentation can be found here: <http://www.greenlightlabs.com/gps-710/legal>

