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GDL 39

Portable ADS-B and GPS Receiver

User's Guide

This manual reflects the operation of System Software version 2.90, or later. Some differences in operation may be observed when comparing the information in this manual to later software versions.

Made for
iPod iPhone iPad

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⚠ **WARNING:** *When installing the GDL 39 in an aircraft, place the unit securely so that it does not interfere with aircraft operating controls or obstruct the pilot's view.*

⚠ **WARNING:** *For safety reasons, GDL 39 operational procedures must be learned on the ground.*

⚠ **WARNING:** *When Navigating in an aircraft, use the GDL 39 only as an aid for VFR navigation.*

⚠ **WARNING:** *Use the GDL 39 only as a navigational aid. Do not attempt to use the GDL 39 for any purpose requiring precise measurement of direction, distance, location, or topography. This product should not be used to determine ground proximity for aircraft navigation.*

⚠ **WARNING:** *This unit provides the ability to receive weather information through external sources. Use weather data only as an aid to situational awareness. Such weather information is merely supplemental and advisory in nature and is not intended to be relied upon as safety-critical information in connection with any aviation, vehicle, or marine usage. The user should always exercise caution and common sense when confronted with severe weather conditions.*

![Garmin logo]

WARNING: Do not use data link weather information for maneuvering in, near, or around areas of hazardous weather. Information contained within data link weather products may not accurately depict current weather conditions.

WARNING: Traffic information is provided as an aid in visually acquiring traffic. Pilots must maneuver the aircraft based only upon ATC guidance or positive visual acquisition of conflicting traffic.

WARNING: The pressure altitude information provided by the GDL 39 in a pressurized airplane will not be accurate. Use the connected display device to disable pressure information from the GDL 39.

CAUTION: The Garmin GDL 39 does not contain any user-serviceable parts. Repairs should only be made by an authorized Garmin service center. Unauthorized repairs or modifications could void both the warranty and the pilot's authority to operate this device under FAA/FCC regulations.

NOTE: All visual depictions contained within this document, including images of the GDL 39 and the bezel, displays, and screens of other products are subject to change and may not reflect the most current software or hardware. Depictions of equipment may differ slightly from the actual equipment.

NOTE: This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful

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interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This product, its packaging, and its components contain chemicals known to the State of California to cause cancer, birth defects, or reproductive harm. This notice is being provided in accordance with California's Proposition 65. If you have any questions or would like additional information, please refer to our web site at www.garmin.com/prop65.

NOTE: This device complies with Part 15 of the FCC limits for Class B digital devices. 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. Furthermore, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference, the user is encouraged to try to correct the interference by relocating the equipment or connecting the equipment to a different circuit than the affected equipment. Consult an authorized dealer or other qualified avionics technician for additional help if these remedies do not correct the problem.

Operation of this device is subject to the following conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Record of Revisions			
Part Number	**Revision**	**Date**	**Description**
190-11110-00	A	6/04/12	Initial release
	B	6/13/12	Document resized
	C	7/17/12	Updated content
	D	9/25/12	Edited the note for the serial connection. Edited the description for antenna location.
	E	2/01/13	SiriusXM receiver distance recommendation.
	F	6/19/13	Added GDL 39R.
	G	7/25/13	Updated GDL 39R figure and specs.
	H	12/4/13	Added AHRS (GDL39 3D)

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1   INTRODUCTION

The GDL 39 includes internal GPS - WAAS enabled and ADS-B receivers.

The GDL 39 receives Traffic (ADS-B/ADS-R and TIS-B) on both Universal Access Transceiver (UAT) and 1090 ES (Extended Squitter). When in proximity to a ground station, the GDL 39 will receive FIS-B weather over the UAT.

The GDL 39 Standard Detachable Antenna provides ADS-B traffic, TIS-B traffic, and FIS-B weather information for viewing on your compatible Garmin® unit. Garmin units like the aera 796 and devices running Garmin Pilot™ will be able to request ADS-B traffic, TIS-B traffic, FIS-B weather, and GPS data over a Bluetooth connection.

The internal GPS receiver is used for processing of traffic and weather data, and also providing position information to the display device.

The GDL 39 3D possesses AHRS capabilities to serve as an aid to attitude awareness.

Descriptions of the functions GDL 39, GDL 39R, and GDL 39 3D are the same and the units will be referred to as the GDL 39 except as specifically noted.

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Standard Detachable GDL 39 Antenna

Power Button

GDL 39

Data/Power Port

Optional External GPS Antenna Connection

Optional Battery Assembly

Mounting Tray
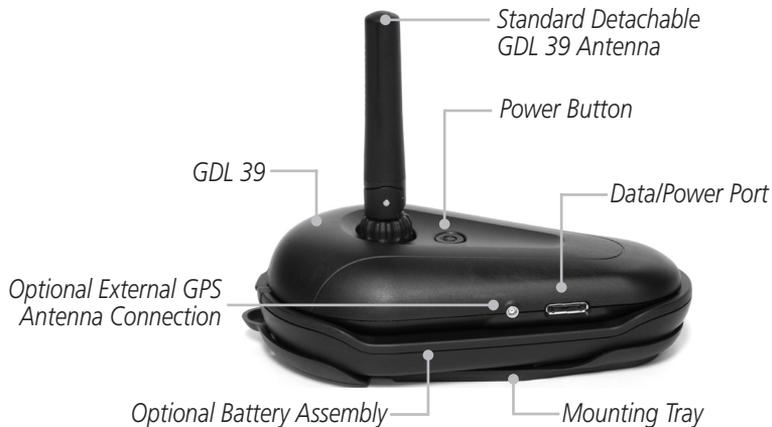
Figure 1-1 GDL 39 with Optional Battery Assembly

To get the most out of your new system, take the time to go through this manual and the Owner's Manual for your display unit. Operational procedures are found in the Owner's Manual for your display unit.

Serial Port Connector

GPS Antenna

ADS-B Antenna

Figure 1-2 GDL 39R

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1.1 Product Registration

Help us better support you by completing your online registration today! Have the serial number of your product handy and connect to the Garmin web site (http://my.garmin.com). Look for the Product Registration link on the Home page. Also, be sure to record your serial number in the space provided. Keep the original sales receipt, or a photocopy, in a safe place.

1.2 Serial Number for the GDL 39

Use the line below to record the serial number in case it is lost, is stolen, or needs service. The serial number is located on the bottom of your unit.

Serial Number:

_____

1.3 GDL 39 System Configuration Part Numbers

The following part numbers cover the GDL 39 and the cable assembly to connect to the listed product:

Part Number	Description
010-11689-00	GDL 39 Portable ADS-B and GPS Receiver
010-11689-01	GDL 39 Portable ADS-B and GPS Receiver for GPSMAP69x
010-11689-02	GDL 39 Portable ADS-B and GPS Receiver for GPSMAP39x/49x
010-11689-03	GDL 39 Portable ADS-B and GPS Receiver for aera 5xx
010-11689-04	GDL 39 Portable ADS-B and GPS Receiver with DC Power Cable
010-11689-05	GDL 39 Portable ADS-B and GPS Receiver for aera 79x
010-11689-06	GDL 39 Portable ADS-B and GPS Receiver with bare wire power
010-11689-07	GDL 39 Portable ADS-B and GPS Receiver with Battery
010-11689-08	GDL 39R Portable ADS-B and GPS Receiver
010-11689-20	GDL 39 3D Portable ADS-B and GPS Receiver
010-11689-24	GDL39 3D Portable ADS-B and GPS Receiver with DC Cable
010-11689-27	GDL39 3D Portable ADS-B and GPS Receiver with Battery

Table 1-1 GDL 39 Configurations

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1.4   What's In The Box

Part Number	Description
010-11689-xx	GDL 39 Portable ADS-B and GPS Receiver*
253-00503-00	Suction Cup**
010-11687-00	Mounting Tray**
010-11686-xx	Cable (if ordered, see the table above for part numbers)
190-11110-00	Garmin GDL 39 Portable ADS-B and GPS Receiver User's Guide
190-11257-00	Trial Certificate to Garmin Pilot™

Table 1-2 GDL 39 Shipping Box Contents

*   A standard detachable antenna is included with the GDL 39. An antenna is not included with the GDL 39R.

**   Not included with GDL 39R.

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2 GETTING STARTED

1. Check to see if an update to the system software of your GDL 39, display and/or Bluetooth devices is available. See the user guides of those devices for instructions. Updating of the devices may be easier to perform before installation in the aircraft.

2. When the GDL 39 is powered on, the GDL 39 will go into Bluetooth pairing mode. Follow the directions for the device intended to connect to the GDL 39. Once a connection is established with a Bluetooth device, the GDL 39 will automatically connect to the Bluetooth device upon power-up. The blue LED will light if a Bluetooth connection has been made. The GDL 39 may be connected to multiple Bluetooth devices simultaneously.

3. Locate the positions for the GDL 39, any external antenna(s), and cable routing.

4. Install the GDL 39 mounting plate (if desired), optional battery pack (if used), and the GDL 39.

5. Connect cabling, if necessary.

6. If the GDL 39 is connected to external power, the GDL 39 will power on automatically. If the GDL 39 is attached to the battery pack, press the power button to turn on the GDL 39.

Optional External ADS-B Antenna
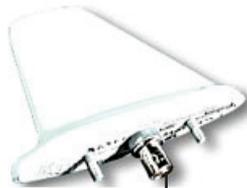
Bluetooth Device

Optional External GPS Antenna

Display Device

GDL 39

Power and Data

Figure 2-1 GDL 39 System

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3 INSTALLATION

The GDL 39 may be connected to the compatible display device by either a wireless Bluetooth connection or directly through a serial cable. The GDL 39 supports connections to multiple Bluetooth devices. The GDL 39 is intended to be physically wired to only one display device.

> *NOTE: Exposed contacts on the top of the battery do not have power when not connected to a unit and no covering is needed. Be careful of causing mechanical damage to the pins. If the pins are bent, the unit or battery may not function properly.*

3.1 Connecting the GDL 39 to a Garmin Unit

1. Connect the GDL 39 cable to the Garmin display unit (unless using a Bluetooth connection).

2. Connect the cable power lead to a 10-32 VDC power source. If the optional battery pack is used, connecting the power lead is not required.

3. Connect the GDL 39 cable to the data port on the GDL 39.

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3.1.1 GDL 39 to GPSMAP 49X/39X Power/Data Cable (P/N 010-11686-20)

Power Connector

To GPSMAP 49X/39X Data Port

To GDL 39 Data/Power Port
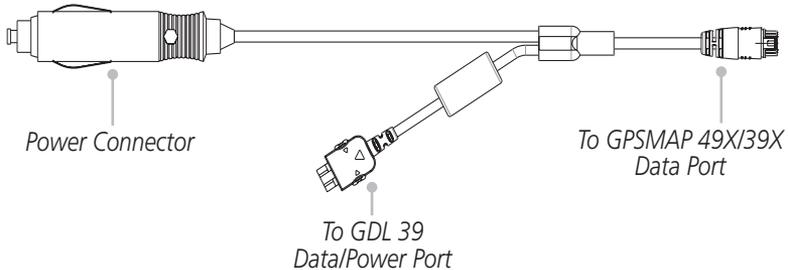
Figure 3-1 GDL 39 to GPSMAP 49X/39X Power/Data Cable

3.1.2 GDL 39 to GPSMAP 69X Power/Data Cable (P/N 010-11686-10)

Power Connector

To GPSMAP 69X Data Port

To GDL 39 Data/Power Port
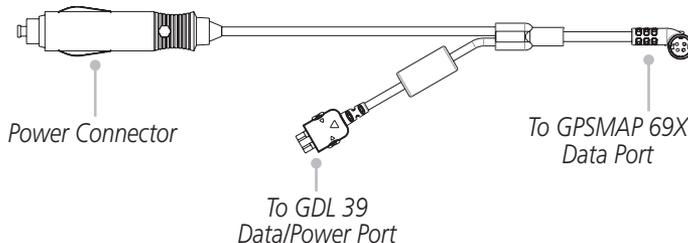
Figure 3-2 GDL 39 to GPSMAP 69X Power/Data Cable

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3.1.3 GDL 39 to aera 5xx Audio Mini-B Power/Data Cable (P/N 010-11686-30)
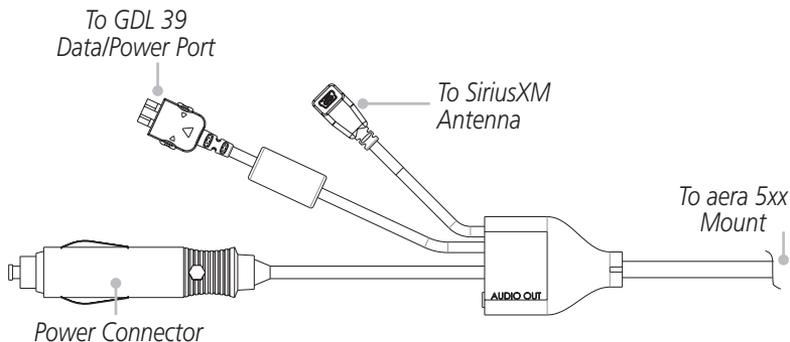
Figure 3-3 GDL 39 to aera 5xx Audio Mini-B Power/Data Cable

3.1.4 GDL 39 to aera 79x Audio Mini-B Power/Data Cable (P/N 010-11686-50)

Power Connector

To aera 79X Mount

To GDL 39 Data/Power Port

To SiriusXM Antenna
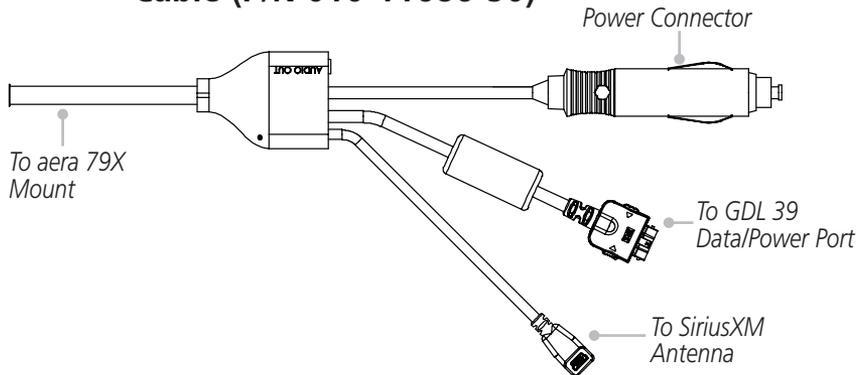
Figure 3-4 GDL 39 to aera 79x Audio Mini-B Power/Data Cable

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3.1.5 GDL 39 to Bare Wire Power/Data Cable (P/N 010-11686-40)

Connection	Wire Color	AWG
Vin 10-32 VDC	Red	26
Discrete Input (see note)	Gray	28
Rx B (Data In)	White/Orange	28
Tx B (Data Out)	Orange	28
Rx A (Data In)	White/Green	28
Tx A (Data Out)	Green	28
Ground	Black	26

Table 3-1 GDL 39 to Bare Wire Power/Data Cable Connections

Figure 3-5 GDL 39 to Bare Wire Power/Data Cable

NOTE: The Discrete Input may be used for a remote On/Off switch. Grounding this input turns the unit on and removing ground turns the unit off. If a remote switch is not used, do not connect this wire.

NOTE: *Secure unused wires to prevent unintentional connections.*

The GDL 39, GDL 39 3D, and GDL 39R have a pass-through serial connection so a serial device can be connected to a display device that has a single serial connection. Some display devices do not support serial pass-through (such as older products like the GPSMap 396/496).
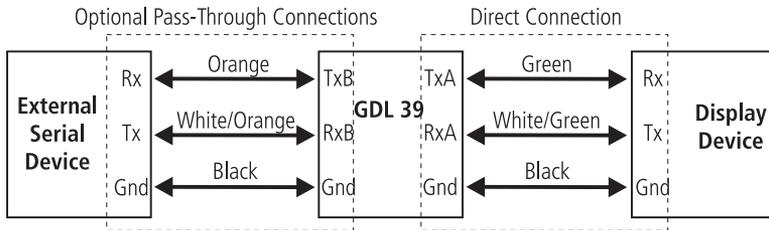
Figure 3-6 Serial Pass-Through Connection

NOTE: *If the external serial device is not used, TxB should be left unconnected and RxB should be connected to ground.*

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3.1.6 GDL 39R dSub Connector Pin Out

Pin Number	Description
1	Discrete Input
2	Tx A (Data Out)
3	Rx A (Data In)
4	ID Pin
5	Ground
6	Tx B (Data Out)
7	Rx B (Data In)
8	Ground
9	Vin 10-32 VDC

Table 3-2 GDL 39R Pin Out Connections

A connector kit including the connector and pins is available for the GDL39R, P/N 010-11825-20.

> *NOTE: Leave the ID pin disconnected unless wiring to a GPSMAP396/496. If connecting to a GPSMAP396/496 connect a 16.5 KOhm resistor (not provided) between this pin and ground.*

> **NOTE**: *The Discrete Input may be used for a remote On/Off switch. Grounding this input turns the unit on and removing ground turns the unit off. If a remote switch is not used, do not connect this wire.*

> **NOTE**: *Secure unused wires to prevent unintentional connections.*

> **NOTE**: *If the external serial device is not used, TxB should be left unconnected and RxB should be connected to ground.*

3.2　External Antenna (Optional)

The GDL 39 includes an internal GPS and detachable ADS-B antenna, but can use an optional external GPS antenna and/or an external ADS-B antenna. Use the installation instructions provided with the optional antennas.

The GDL 39R includes an internal GPS antenna and can use an optional external GPS antenna. An external ADS-B antenna is required for the GDL 39R. The GDL 39R uses BNC antenna connectors.

> **NOTE**: *The GDL 39 can receive GPS information when interfaced with certain Garmin GPS receivers. Refer to your specific Garmin display manual to determine if this is supported.*

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Standard Detachable ADS-B Antenna

External SMA Antenna Connection

External MCX GPS Antenna Connection

Figure 3-7 GDL 39 Antenna Connections

3.2.1   Remote GPS Antennas (Optional)

Compatible remote GPS antennas are:

- GA 25MCX (010-10702-00) (aircraft interior)

- GA 35 (aircraft exterior) (013-00235-0x)

- GA 36 (aircraft exterior) (013-00244-0x)

- GA 37 (aircraft exterior) (013-00245-0x)

- A33W (aircraft exterior) (013-00261-0x)

Connect the antenna to the connector located on the side of the unit.

External MCX GPS Antenna Connection

Power/Data Port

Figure 3-9 GDL 39 Antenna and Power/Data Port Connections

Figure 3-10 GA 25MCX GPS Antenna

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3.2.2 External ADS-B Blade Antenna (Optional)

A blade-type ADS-B antenna is mounted on the exterior of the aircraft. Connection is made by unscrewing the antenna on the GDL 39 and attaching the cable from the external antenna to the female SMA connector on the top of the GDL 39. The GDL 39 requires a UHF antenna that meets the following specifications:

- Standard 50 ohm vertically polarized antenna with a VSWR < 1.7:1 at 978 MHz and < 1.5:1 at 1090 MHz.
- TSO-C66, TSO-C74, or TSO-C112 antennas that also meet the VSWR specification.

> *NOTE: Certain types of transponder antennas that utilize very thin radiator elements are only intended for use at 1030 and 1090 MHz. These types of antennas should be evaluated on a model-by-model basis to determine their suitability as UAT data link antennas.*

Figure 3-8 External ADS-B Antenna

The following table includes a list of compatible antennas.

Model/ Description	Conn Type	Mfr	Part Number
DME Transponder	BNC	Comant	CI-100
DME Transponder	TNC	Comant	CI-100-2
DME Transponder	BNC	Comant	CI-105
DME Transponder	BNC	Comant	CI-105-3
DME Transponder	BNC	Comant	CI-105-11
DME Transponder	BNC	Comant	CI-105-16
DME Transponder	C	Comant	CI-110-40-30
DME Transponder	C	Comant	CI-110-41-30
DME Transponder	C	Comant	CI-110-60-30
DME Transponder	C	Comant	CI-110-61-30

Table 3-2 Compatible ADS-B Antennas

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3.3 GDL 39 Location and Mounting

3.3.1 Location

For best reception position the GDL 39 where it has a clear view of the sky. If the unit is placed on the glare shield it may get very hot due to the direct sunlight and reduce the operating life of the unit. The GDL 39 antenna, internal or external, should be mounted at least 3.3 feet (1 meter) away from the path of any high powered transmitter antenna, such as a transponder or VHF radio antenna. The GDL 39 should be mounted at least 6 inches (10.24 cm) away from a magnetic compass. The GDL 39 and its cable should be mounted at least 1 inch (2.5 cm) away from a SiriusXM receiver. If using an external ADS-B antenna, it is recommended to locate the antenna on the bottom of the aircraft for best ground station reception.

For optimum performance (most accurate), of the AHRS function, the GDL 39 3D should be placed as close as possible to the center of the aircraft (along its longitudinal axis).

> ⚠️ **WARNING:** *It is the sole responsibility of the owner/operator of the GDL 39 to place this mount and secure the unit so that it will not interfere with the aircraft's operating controls and safety devices, or cause damage or personal injury in the event of an accident or turbulence. Do not mount the GDL 39 where the pilot or passengers are likely to impact it in an accident, collision, or turbulence. The mounting hardware provided by Garmin is not warranted against turbulence, collision damage, or related consequences.*

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The GDL 39 3D with AHRS capability must be positioned with the small end pointing towards the direction of flight and the large end with the lights facing the rear of the aircraft.
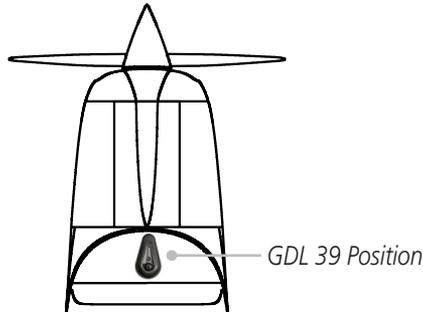
GDL 39 Position

Figure 3-11 GDL 39 3D Mounting Position

3.3.2   Mounting

A mounting plate is included to provide a fixed mount inside the aircraft, if desired. The GDL 39 and optional battery have rubber pads that keep the unit from sliding around, if the mounting plate is not used. The GDL 39 may be mounted in a remote location away from the cockpit, but may require the use of an external antenna for best GPS and ADS-B reception.
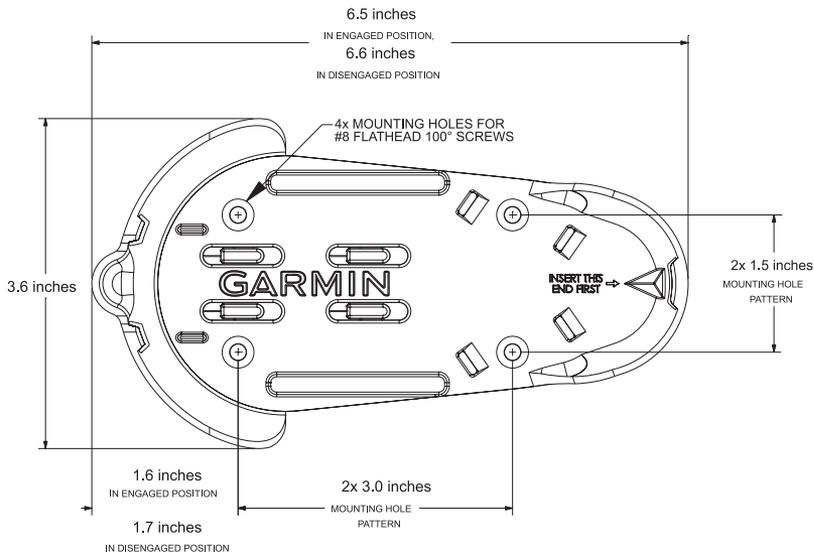
Figure 3-12 GDL 39 Mounting Plate

1. Locate the proposed mounting position. Ensure that the cabling will reach the required connections with room to secure the cables in a safe manner. Cables may be inserted into the slot in the included suction cup to assist in routing cables.

2. Place the mounting plate in position and mark the location of the four mounting holes.

3. Drill holes for the mounting screws with the appropriately sized bit.

4. Attach the mounting plate with four #8 flat head 100° screws (not supplied).

5. Insert the GDL 39 into the mounting plate small end first and then push down gently so it snaps into place.

   If the optional battery pack is used, insert the GDL 39 into the battery pack small end first and then push down gently so it snaps into place. Now, insert the combined GDL 39 and battery pack into the mounting plate in the same manner.

3.4 GDL 39R Location and Mounting

The GDL 39R is designed for mounting in a location remote from the cockpit. The GDL 39R uses the dSub connector wiring information in section 3.1.6 for the installer to create the necessary cable for connecting to the aircraft wiring.

1. Locate the proposed mounting position. Ensure that the cabling will reach the required connections with room to secure the cables in a safe manner.

2. Place the mounting plate in position and mark the location of the six mounting holes.

3. Drill holes for the mounting screws with the appropriately sized bit.

4. Attach the mounting plate with #8 flat head 100° screws (not supplied).
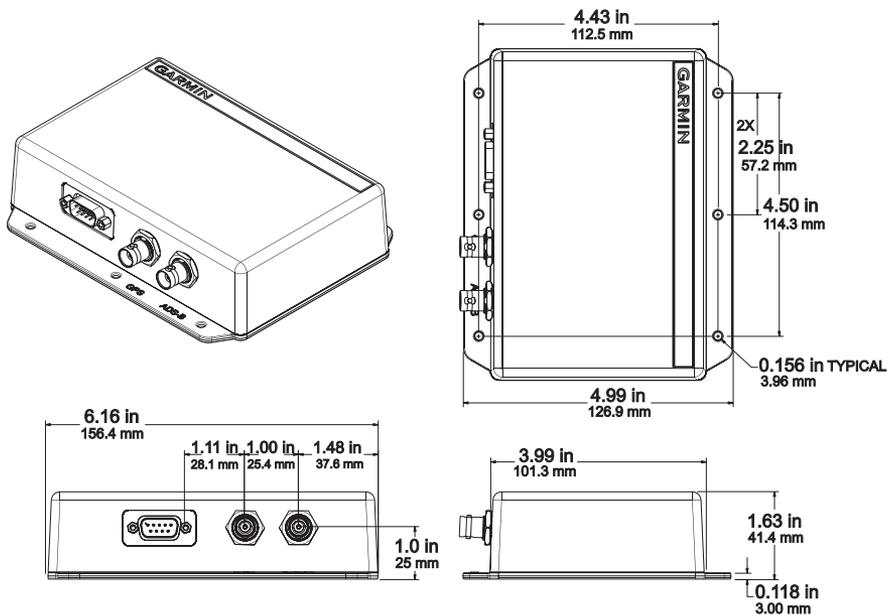
Figure 3-13 GDL 39R Dimensions

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3.5   Battery Installation

⚠️ *WARNING: The product contains a lithium-ion battery. To prevent damage, remove the unit from the aircraft or vehicle when exiting or store it out of direct sunlight.*

1. Locate the lithium-ion battery assembly, if purchased.

2. The battery assembly is installed to the bottom of the GDL 39 following the location information inscribed on the battery assembly.

3. If a mounting plate is used, insert the GDL 39 and battery assembly into the mounting plate following the location information inscribed on the mounting plate.

3.6   Charging the Battery

Charge the GDL 39 battery assembly until the LED on the battery turns off before using on battery power. Typical charge time is 4 hours. Charge the battery by connecting the appropriate power cable to the GDL 39 while it is attached to the battery assembly.

The unit can be used while it is charging. Charge the unit within the following temperature range: 32° to 104°F (0° to 40°C). The battery should not be charged while on the glare shield due to the heat from the direct sunlight. The battery will not charge when the temperature is above 40°C.

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The battery assembly may be charged independently of the GDL 39. Connect power/data cable to connector in the battery assembly. An orange LED next to the power port on the battery assembly will be lighted while it is charging. The LED will extinguish when charging is complete.

GDL 39 Battery Assembly

Power Connection

Orange Charging LED   *Connection To GDL 39*
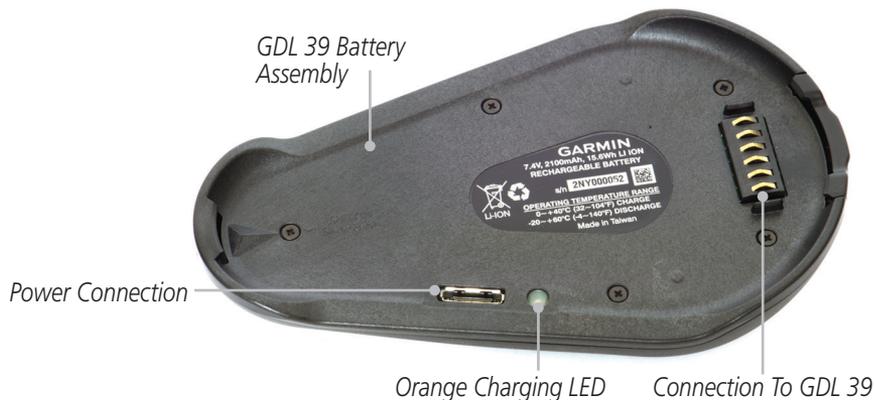
Figure 3-14 Separate GDL 39 Battery Assembly Charging

3.7 Unit Care
3.7.1 Cleaning

The case for the unit is constructed of high-quality material and does not require user maintenance other than cleaning. Clean the unit housing using a lightly-dampened cloth with a mild detergent solution and then wipe it dry. Avoid chemical cleaners and solvents that may damage plastic components. Do not apply cleaner to the electrical contacts on the unit.

3.7.2 Storage

Do not store the GDL 39 where exposure to extreme temperatures may occur, as permanent damage may result.

3.8 Installation Checkout

1. Turn on each unit in the system.

2. Ensure that the GDL 39 has established a Bluetooth connection, if one is necessary.

3. Wait until the GDL 39 has established a position fix. A position fix is required for the GDL 39 to provide traffic and weather.

4. Check the display device and check for the features that the GDL 39 is intended to provide, i.e. traffic, weather, etc. The GDL 39 must be within receiving range of a ground station to access weather.

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4   OPERATION

4.1   Normal Operation

1. Turn on any display devices that will interface with the GDL 39.

2. Turn on the GDL 39.

3. With power applied to the unit, observe the Status LEDs on the front of the GDL 39 to ensure that power is on. Power is indicated by a solid green LED.

Power Button

Figure 4-1 GDL 39 Power Button

4. If using a Bluetooth connection, observe the Status LEDs on the front of the GDL 39 to ensure that the Bluetooth connection has been established. When connected with one or more Bluetooth devices the blue LED will be on. Multiple Bluetooth devices may be connected with the GDL 39.

Status LEDs

Power (Green) ——— ——— *Bluetooth (Blue)*

Photosensor ———

Figure 4-2 GDL 39 Status LEDs

5. Make sure it has acquired a GPS fix. A fix is required for traffic and weather. To ensure a fix is established, check the display device and view the features that the GDL 39 is intended to provide, i.e. traffic, weather, etc. The GDL 39 must be within receiving range of a ground station to access weather.

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Light	Behavior	Description
Power	Solid Green	Power is on
Bluetooth	Solid Blue	Bluetooth connection is active
Bluetooth	Blinking Blue	Manual Bluetooth Searching Mode

Table 4-1 GDL 39 Status LEDs

The photosensor adjusts the status light intensity based on ambient lighting.

4.2   Bluetooth Setup

1. When the GDL 39 is powered on, the GDL 39 will go into pairing mode. Follow the directions for the device intended to connect to the GDL 39.

2. The blue LED will be constant when the device is connected. Bluetooth setup only needs to be run for the first time pairing with a device. You may need to select the GDL 39 from the list of Bluetooth devices in your display device. Multiple Bluetooth devices may be connected with the GDL 39.

> **NOTE**: If having issues making a Bluetooth connection hold the power button down for 5 seconds. The blue LED will begin blinking. Release the power button and then press the **Power** button again for 5 seconds. Power cycle the GDL 39 and retry making a Bluetooth connection.

4.3 Software Updates

Software updates for the GDL 39 can be received through your Garmin display device. See the display device documentation for details. Software updates can be received through your mobile device by downloading the GDL 39 Utility App from your mobile device's mobile app store.

> *NOTE: The unit will not update software when running off only battery power.*

4.4 Traffic

> *WARNING: The GDL 39 is an aid for visually acquiring nearby aircraft. It should never be assumed that the GDL 39 is providing complete information about the traffic in the area.*

The GDL 39 can receive traffic from both the UAT (978 MHz) and Mode S ES (1090 MHz) data links. Traffic can be received directly from an aircraft with an ADS-B transmitter or from an FAA ground station. The FAA ground station will broadcast traffic that is tracked via radar and is called TIS-B traffic. No subscription fee is required for receiving TIS-B.

The FAA ground station will only broadcast TIS-B traffic that is within ±15 NM and ±3500 feet of an aircraft with ADS-B Out. To get the full benefits of ADS-B traffic it is recommended that the aircraft be equipped with an ADS-B transmitter (such as a GTX 330 w/ES).

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Refer to the attached website for more information on ADS-B: www.garmin.com/adsb

4.5 Weather

The GDL 39 will receive the Flight Information Service (FIS-B) that is broadcast on the UAT data link from the FAA ground stations. No subscription fee is required for receiving FIS-B. FIS-B products available from the FAA ground station include NEXRAD Conus, NEXRAD Regional, TFR, TAF, PIREP, NOTAMS, SIGMET/ AIRMET, METAR, and Winds Aloft. See your display device documentation for detailed information about weather products.

4.6 Attitude Heading Reference System (AHRS)

This section only applies to the GDL 39 3D units with the AHRS function. The AHRS function starts automatically and will perform leveling adjustments for pitch and tilt angles when the unit is powered on. The AHRS function will not be available until the leveling process has finished. The GDL 39 3D does not have to be perfectly level as the leveling process will compensate for any differences. The connected display device can command the GDL 39 3D to perform the leveling process.

The unit needs to be pointed in the direction of flight when placed/mounted. See the Location section (3.3.1).

NOTE: AHRS is only to be used as an aid and should not be used as a primary attitude indicator.

NOTE: Extreme attitudes may degrade AHRS accuracy.

Additional options for AHRS operation are available in the Garmin Pilot app or other compatible apps from your mobile device's mobile app store.

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5   APPENDIX

5.1   Troubleshooting

If efforts to resolve the problem fail, contact your dealer or customer service for technical assistance.

Please have the following information ready:

- System configuration (products, antennas, mounting locations, etc.)
- Model No., part number, and serial number
- Software versions
- Description of the problem
- Efforts made to isolate/solve the problem

Garmin International, Inc.
Aviation Products Customer Service Department
1200 East 151st Street
Olathe, KS 66062-3426   USA

1-866-739-5687

5.2   Servicing Your Unit

The Garmin GDL 39 has no user-serviceable parts. Should you ever encounter a problem with your unit, take it to an authorized Garmin dealer for repairs, or contact Garmin Product Support at 1-866-739-5687.

The GDL 39 is sealed to protect the unit. Any attempt to open the case to change or modify the unit in any way voids your warranty and may result in permanent damage to the equipment.

5.3   GDL 39 Specifications
5.3.1   GDL 39 Physical Specifications

Unit Size: 3.5 inches W x 1.9 inches H × 6.0 inches D (88.9 x 48.3 × 152.4 mm)

Unit Weight: 7.7 oz. (218 g)

Operating Temperature Range: -20˚C to 60˚C (-4º F to +140º F)

Case: High-impact plastic

Mounting Plate Fasteners: four #8 flat head 100º screws

5.3.2   GDL 39R Physical Specifications

Unit Size: 5.0 inches W x 1.6 inches H × 6.2 inches D (127 x 41.35 × 156.7 mm)

Unit Weight: 17.7 oz. (502 g)

Operating Temperature Range: -20˚C to 60˚C (-4º F to +140º F)

Case: High-impact plastic

Mounting Plate Fasteners: six #8 flat head 100º screws

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5.3.3   Power
Source: 10 to 32 VDC

Unit Power: 3.5 W max

Battery Charge Power: 4.5 W max

Total Power while charging: 8.0 W max

5.3.4   Optional Battery Assembly
Lithium Ion Rechargeable Battery

    Output Voltage: 7.4 VDC

    Charging Voltage: 10-32 VDC

    Capacity: 2100 mAh

    Charge Temperature: 0 to +40º C (32º F to +104º F)

    Operating Temperature: -20º to +60º C (-4º F to +140º F)

    Typical Battery Operating Time: 5 hours

    Battery Size: 3.8 inches W x 0.9 inches H × 6.4 inches D (96.5 x 22.9 × 162.6 mm)

    Battery Weight: 6.08 oz. (172 g)

NOTE: The battery will not charge when the temperature is above 40°C.

5.3.5   Compatibility

Compatible units may be added and there are limitations with some older units, so contact your authorized Garmin dealer for the most current information.

Display	Traffic	FIS-B (Wx)	Connection
GPSMAP 39X	8 Targets	No	RS-232
GPSMAP 49X	8 Targets	No	RS-232
GPSMAP 69X	30 Targets	Yes	RS-232
GDU 37X	30 Targets	Yes	RS-232
aera 5XX	30 Targets	Yes	RS-232
aera 79X	30 Targets	Yes	Bluetooth/RS-232
Garmin Pilot enabled devices *	30 Targets	Yes	Bluetooth

Table 5-1 Display Interface Summary

*   Garmin Pilot can interface with Apple devices such as the iPhone®, iTouch®, and iPad® (iOS 5.0, or later) and with Android mobile phones and tablets with Bluetooth capability.

Made for iPod® touch (4th generation), iPod touch (3rd generation), iPhone® 4S, iPhone 4, iPhone 3GS, iPad® (3rd generation), iPad 2, and iPad.

"Made for iPod, iPhone, iPad" means that an electronic accessory has been designed to connect specifically to iPod, iPhone, or iPad respectively, and has been certified by the developer to meet Apple performance standards. Apple is not responsible for the operation of this device or its compliance with safety and

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regulatory standards. Please note that the use of this accessory with iPod, iPhone, or iPad may affect wireless performance.

5.3.6 AHRS Specifications

Rate Gyros: 3 axis, ±500° per second

Accelerometers: 3 axis, ± 8g

Magnetometer: 3 axis, ± 2 gauss

5.4 Contact Garmin

Contact Garmin if you have any questions while using your GDL 39. In the USA, contact Garmin Product Support by phone: (913) 397-8200 or (866) 739-5687, Monday–Friday, 7 AM–7 PM Central Time; or go to https://fly.garmin.com/fly-garmin/support.

In Europe, contact Garmin (Europe) Ltd. at +44 (0) 870.8501241 (outside the UK) or 0808 2380000 (within the UK).

5.5 GDL 39 Part Numbers

Part numbers for individual components of the GDL 39 are shown in the following table:

Item	Part Number
Optional GA 25MCX Remote GPS Antenna (Low Profile)	010-10702-00
Battery Charger Cable	010-10747-04
GDL 39 to GPSMAP 69X Power/Data Cable	010-11686-10
GDL 39 to GPSMAP 49X/39X Power/Data Cable	010-11686-20
GDL 39 to aera 5xx Audio Mini-B Power/Data Cable	010-11686-30
GDL 39 to Bare Wire Power/Data Cable	010-11686-40
GDL 39 to aera 79x Audio Mini-B Power/Data Cable	010-11686-50
GDL 39 to Cigarette Lighter Power Cable	010-11686-60
GDL 39 Mounting Plate only	010-11687-00
Optional Battery Assembly	010-11688-00
GDL 39 Unit	010-11689-00
Standard Detachable GDL 39 Antenna	010-11825-00
GDL 39 Antenna Extension Cable	010-11825-10
GDL 39R Connector Kit	010-11825-20

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Item	Part Number
Garmin GDL 39 Portable ADS-B and GPS Receiver User's Guide	190-11110-00

Table 5-2 Accessories

5.6   Software License Agreement

BY USING THE GDL 39, YOU AGREE TO BE BOUND BY THE TERMS AND CONDITIONS OF THE FOLLOWING SOFTWARE LICENSE AGREEMENT. PLEASE READ THIS AGREEMENT CAREFULLY.

Garmin grants you a limited license to use the software embedded in this device (the "Software") in binary executable form in the normal operation of the product. Title, ownership rights, and intellectual property rights in and to the Software remain with Garmin.

You acknowledge that the Software is the property of Garmin and is protected under the United States of America copyright laws and international copyright treaties. You further acknowledge that the structure, organization, and code of the Software are valuable trade secrets of Garmin and that the Software in source code form remains a valuable trade secret of Garmin. You agree not to decompile, disassemble, modify, reverse assemble, reverse engineer, or reduce to human readable form the Software or any part thereof or create any derivative works based on the Software. You agree not to export or re-export the Software to any country in violation of the export control laws of the United States of America.

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5.7   LIMITED WARRANTY

All Garmin avionics products are warranted to be free from defects in materials or workmanship for: two years from the date of purchase for new Remote-Mount and Panel-Mount products; one year from the date of purchase for new portable products and any purchased newly-overhauled products; six months for newly-overhauled products exchanged through a Garmin Authorized Service Center; and 90 days for factory repaired or newly-overhauled products exchanged at Garmin in lieu of repair. Within the applicable period, Garmin will, at its sole option, repair or replace any components that fail in normal use. Such repairs or replacement will be made at no charge to the customer for parts or labor, provided that the customer shall be responsible for any transportation cost. This warranty does not apply to: (i) cosmetic damage, such as scratches, nicks and dents; (ii) consumable parts, such as batteries, unless product damage has occurred due to a defect in materials or workmanship; (iii) damage caused by accident, abuse, misuse, water, flood, fire, or other acts of nature or external causes; (iv) damage caused by service performed by anyone who is not an authorized service provider of Garmin; or (v) damage to a product that has been modified or altered without the written permission of Garmin. In addition, Garmin reserves the right to refuse warranty claims against products or services that are obtained and/or used in contravention of the laws of any country.

THE WARRANTIES AND REMEDIES CONTAINED HEREIN ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING ANY LIABILITY ARISING UNDER ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, STATUTORY OR OTHERWISE. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, WHICH MAY VARY FROM STATE TO STATE.

IN NO EVENT SHALL GARMIN BE LIABLE FOR ANY INCIDENTAL, SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, WHETHER RESULTING FROM THE USE, MISUSE OR INABILITY TO USE THE PRODUCT OR FROM DEFECTS IN THE PRODUCT. SOME STATES DO NOT ALLOW THE EXCLUSION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU.

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Garmin retains the exclusive right to repair or replace (with a new or newly-overhauled replacement product) the product or software or offer a full refund of the purchase price at its sole discretion. SUCH REMEDY SHALL BE YOUR SOLE AND EXCLUSIVE REMEDY FOR ANY BREACH OF WARRANTY.

Online Auction Purchases: Products purchased through online auctions are not eligible for warranty coverage. Online auction confirmations are not accepted for warranty verification. To obtain warranty service, an original or copy of the sales receipt from the original retailer is required. Garmin will not replace missing components from any package purchased through an online auction.

International Purchases: A separate warranty may be provided by international distributors for devices purchased outside the United States depending on the country. If applicable, this warranty is provided by the local in-country distributor and this distributor provides local service for your device. Distributor warranties are only valid in the area of intended distribution. Devices purchased in the United States or Canada must be returned to the Garmin service center in the United Kingdom, the United States, Canada, or Taiwan for service.

To obtain warranty service, contact your local Garmin Authorized Service Center. For assistance in locating a Service Center near you, visit the Garmin web site at http://www.garmin.com or contact Garmin Customer Service at 866-739-5687.

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5.8 Battery Information

If these guidelines are not followed, the internal Lithium Ion battery may experience a shortened life span or may present a risk of damage to the GPS unit, fire, chemical burn, electrolyte leak, and/or injury.

- Contact your local waste disposal department to properly recycle/dispose of the unit/battery.
- Do not leave the unit exposed to a heat source or in a high temperature location, such as in the sun in an unattended aircraft on a hot day. To prevent damage, remove the unit from the aircraft or store it out of direct sunlight.
- Do not disassemble, puncture, damage, or incinerate the unit/battery.
- When storing the unit for a limited length of time (less than 30 days), store within the following temperature range: -4° to 122°F (-20° to 50°C). When storing the unit for an extended time, store within the following temperature range: -4° to 86°F (-20° to 30°C).
- Do not operate the unit outside of the following temperature range: -4° to 140°F (-20° to 60°C).
- Keep the used battery away from children.
- Do not use a sharp object to remove the battery.
- Only replace with an exact replacement battery pack. Using another battery presents a risk of fire or explosion. To purchase a replacement battery, see your Garmin dealer or the Garmin Web site.
- Do not remove or attempt to remove the non-user-replaceable battery.

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- When disposing of the battery pack, take it to a professional service, such as a waste electronics treatment facility, to have the battery removed and recycled.
- Exposed contacts on the top of the battery do not have power when not connected to a unit and no covering is needed. Be careful of causing mechanical damage to the pins. If the pins are bent, the battery may not function properly.

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