



L2000W INSTALLATION GUIDE

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1. INSTALLATION

This section describes the steps involved in installing the L2000W Locator and the tools required.

1.1 Equipment Provided

The L2000W is shipped with the following items:

- 1) L2000W Locator
- 2) Antennas:
 - a. GSM Stubby antenna
 - b. GPS Magnetic-mount antenna
- 3) Installation Guide
- 4) L2000W Power/Serial Cable

1.2 Equipment Required (typical installation)

| Wiring tools and accessories | | Hardware mounting tools and accessories | |
|---|----------------------------------|---|----------------------------|
| Wire stripping tools | Heat-shrink tubing | Drill | Screws |
| Multi-meter | Automotive grade wire (16-18)AWG | Screwdriver | Nuts, washers, as required |
| Solder iron | Electrical Tape | | Silicone Sealant |
| Crimp Tool | Rosin Core Solder | | |
| | Automotive Wire connectors. | | |
| | In line fuse holder | | |
| | Fuses | | |
| Single-pole single-throw switch (if installing separate power switch for locator) | | | |

1.3 Mounting the Locator

Mount the locator in a location that minimizes the likelihood of physical damage to the Locator. Generally under-dash or trunk mounting is preferable. The Locator comes with holes in flanges for mounting.

1.3.1 Mounting Location Guidelines.

- Ensure there is access to the Locator connectors and the LED is visible, unless the installation is covert.
- Ensure excessive heat is avoided

- Ensure the Locator is mounted where it is protected from moisture

1.3.2 Mounting Technique Guidelines

- Mount the Locator securely with screws:
 - Drill holes
 - Secure the Locator with screws
- If using Velcro, ensure the surface is clean prior to mounting.
- The GPS antenna must be facing up.
- The GSM antenna must be adjusted for vertical position.

1.4 Antenna Installation

Important!

Proper Antenna location and cabling technique is critical to optimal operation and performance of the L2000W Locator. This includes both coverage and throughput performance.

1.4.1 Install the GPS Antenna

Mount the GPS antenna (square black antenna) on an area of the vehicle where there is no obstruction of the sky. The recommended location for the GPS antenna is the roof of the vehicle or the trunk. A magnet is contained within the GPS antenna that permits mounting in the middle of the roof or trunk. Be careful when placing, moving or removing the magnetic-mount antenna to not drag it across the metal surface and damage the finish of the vehicle.

If the area is not metal, silicone adhesive can be used.

Once the antenna is installed, run the antenna cable to meet the Locator using cable ties where appropriate.

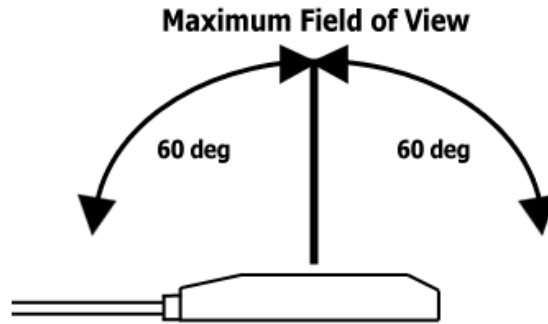
1.4.1.1 Covert GPS Antenna Installation

If it is essential that the antenna be fitting out of site, the following considerations should be observed:

- The antenna's view of the sky must be as wide as possible
- The antenna's field of view must not be obscured by any metallic object (including front windscreens with heating, UV filters or metallic tints)

- The top of antenna should point towards the field of view
 - Signal strength is enhanced if antenna is mounted directly onto metal
- With these points in mind, the GPS antenna should be mounted under a window, normally either the front or rear screen, as these generally provide the maximum view of the sky.

Although there are no fixed rules, generally it is acceptable for the antenna to be located under the dash lining, under a non-metallic parcel shelf or within an instrument or light cluster.



After Installation, GPS operation should be tested as rigorously as possible to ensure optimum performance under operational conditions

1.4.2 Install the GSM Antenna

The Locator is shipped with a stubby GSM antenna connected. This antenna is adequate for most use, and required for covert installations. Ensure this antenna is in the vertical position.

1.4.3 Antenna Installation Guidelines

- ***Don't mount antennas in areas with limited space for a ground plane.***
 - Ground planes should provide at least 6" (15cm) of metal in all directions.
- ***Don't mount antennas very close to another antenna.***
 - 2" (5cm) separation from another antenna is usually advisable.

- **Don't mount antennas where they will be close to people.**
 - Antennas should be mounted where vehicle occupants will be separated from the radiating element by at least 8" (20cm)
- **Don't mount antennas where they are covered or blocked by metal.**
- **Do not put antennas where they are close to electronic management and control systems**
- **Mount antennas outside and on the vehicle roof where possible.**
- **Double check the antennas are the right models**
 - Use approved antennas that are designed for the correct frequencies.
- **Mount GPS antennas where they will see the most sky.**
 - Do not mount GPS antennas where they will be on an angle, they should be horizontal to see as much sky as possible.
- **For long cable runs use a good quality low loss cable, at least 0.6 dB/meter.**
- **Do not tightly kink or wrap excess cable. Be particularly careful not to trap any cables when refitting trims to the vehicle.**
- **It is critical that RF Connector be properly connected to the RF cable. Be sure to use proper crimping tools and follow the manufacturer's instructions.**
- **When connecting the antenna to the Locator, do not over tighten. Tightening by hand is usually adequate.**
- **Mount antennas securely. Follow the antenna manufacturer's installation instructions.**

2. L2000W POWER/SERIAL CABLE WIRING

2.1 Installing the Power Harness

Important!

Use of proper vehicle wiring technique and hardware is absolutely essential to correct operation of the L2000 Locator.

The Locator comes with three wires that must be connected.

Red Wire: Battery

- Connect to +12V. Make sure the positive voltage is between 9 and 24 Volts.

Black Wire: Ground.

- Connect the vehicle ground.

Yellow Wire: Ignition.

- Connect to vehicle ignition.

It is critical for correct Locator operation that the Ignition wire be connected to vehicle ignition and not to battery.

2.1.1 Electrical Safety

The following points are for guidance only and are not intended to be all-inclusive:

- Consult the vehicle manufactures guidelines regarding disconnection of the vehicle battery when installing new electrical devices. Always disconnect the vehicle battery prior to making any electrical connections. For the L2000W Locator installations particularly, it will be necessary to locate or confirm power sources prior to disconnecting the vehicle battery. If the battery is to be disconnected, the consequences for that vehicle should be understood i.e. radio codes need to be available, any reset procedure for airbag systems, ECU's etc.
- Never attempt to test any electrical circuits using a test lamp.

- Remove or cover any jewelry if it is necessary to work on live electrical systems.
- Never Tamper with or disconnect the air bag or SRS electrical harness
- Refer to the vehicle manufacturer's instructions when making supplementary electrical connections.
- Use a high impedance multi-meter with both voltage and resistance ranges for testing electrical circuits.

2.1.2 Electrical Wiring Guidelines

1. Use appropriate pick-off points for power wiring

- If possible wire to a power bar or suitable common terminal connection point
- **Don't splice into individual lines going to other electrical devices.** In some cases these points can exhibit substantial momentary voltage drops. Notoriously bad are wires going to heating mirrors or a vehicle's charging indicator, among many others.
- Negative Ground (earth) connection (black wire):

Always connect directly to a dedicated earth point within the vehicle electrical system. It is preferred to use a unique earth point, as connecting to one with other systems already connected to it could cause a buildup in contact resistance which may cause supply voltage problems, resulting in erratic operation of the Locator. If necessary, create a suitable earth point in an area that will not lead to corrosion. **Avoid earth pints that also serve engine management CU, ABS or Air bag systems etc.**

- Battery (red wire) connection:

Connect to a continuous +12 to +24 volt DC supply. This should be taken from the secondary side of the main distribution fuse from the vehicle battery and should not share a fused supply to any other equipment.

This line should be fused at source to provide protection against shorting of the wiring harness (the Locator is internally protected).

Ensure the power to the locator is not interrupted (supply voltage under 9Vdc) when the engine is being started.

- Ignition (yellow) connection:

Connection to an ignition signal which goes positive (+9 to +30 Volt DC) when the engine is running and is removed or goes to ground when the engine stops.

To avoid mis-operation ensure the power is not interrupted (supply voltage under 9Vdc) for more than 5 seconds when the engine is started.

2. Use appropriate connectors

- **Don't use 'quick taps'** – they are not good for critical power supply connections. These types of taps cut into the wire you connect them to, reducing the life of the wire and reducing its voltage and current handling capabilities. They increase the risk of both corrosion and crush-type wiring failures.
- **If you must splice**, an appropriate method of splicing is to strip-away a small portion of the insulation, **solder the modem power wires**, then heat-shrink the connection to re-insulate.
- Use proper sized automotive crimp terminals
- Be sure to **crimp connectors properly with the correct sized crimp tool**. Confirm the physical connection is solid.

3. Install connectors well

- Wire should be fully inserted into the connector with insulation intact – **don't leave bare wire exposed**.
- If you combine wires ensure the connector can handle the resulting gauge.
- **Use toothed washers** where bolting connectors to the vehicle. **Make sure the ground connection is solid and reliable**.

4. Don't leave cut wires exposed

- **Check for accidentally cut wire** – it can damage vehicle wiring, devices, or worse cause a fire.
- **Don't leave cut wire exposed** – tape or properly terminate all wire cuts so there is no risk of shorting or corrosion.
- **Don't leave free connector contacts or pins exposed** – tape or properly terminate all connectors.

5. Ensure wiring is Correct

- Make absolutely sure the red wire is connected to battery and the yellow wire is connected to ignition.

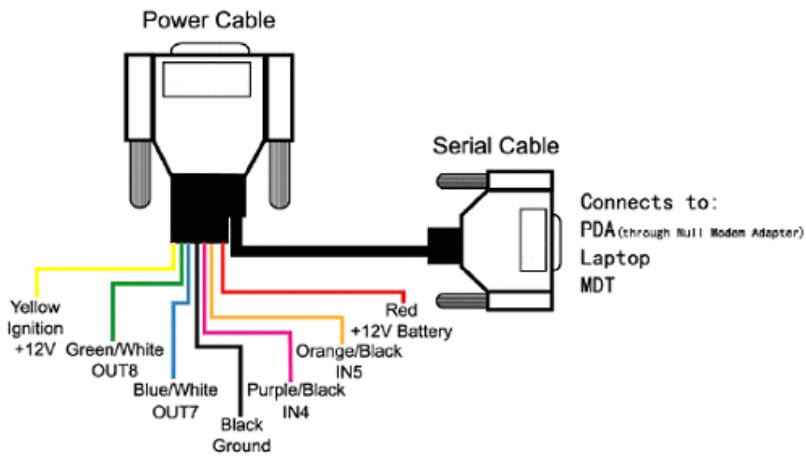
6. Route Cable properly

- Where possible **secure wiring in the wiring channel** provided by the vehicle manufacturer
- **Never put cabling where it will be stepped on** such as under rugs or mats.
- **Never wire in areas susceptible to holding moisture.** For example insulation under the carpet holds water and can be commonly damp, making any wiring connections here highly susceptible to corrosion.
- Never put cable where a passenger or driver's feet rest right on top of the wires
- **Tie wrap and tape cables so the stay secure.**

2.2 L2000W Power/Serial Cable

| Seq | Color | I/O Name | General Description | Install Description | |
|-----|--------------|-------------------------|--|---------------------|-----|
| 1 | Blue/White | OUTPUT 7 | Ground pulse output (200 milli-amps) | Optional | AUX |
| 2 | Green/white | OUTPUT 8 | Ground pulse output (200 milli-amps) | Optional | AUX |
| 3 | Purple/Black | INPUT 4 | Input detecting ground contact closure (protected up to 30V) | Optional | AUX |
| 4 | Orange/Black | INPUT 5 | Input detecting ground contact closure (protected up to 30V) | Optional | AUX |
| 5 | Yellow | Ignition | Ignition | Mandatory | |
| 6 | Red | Power +12Vdc to +24 Vdc | Power supply | Mandatory | |
| 7 | Black | GND | Ground | Mandatory | |

2.2.1 L2000W Power/Serial Cable Wiring Diagram

**Important!**

Unused wires must be insulated to prevent shorts.

3. OPERATION AND VERIFICATOIN TESTING

3.1 L2000W LED Definitions

| LED | Meaning | | |
|--|-----------------------------|------------|------------|
| Off | The Locator is powered off. | | |
| Flashing Orange and Red | No SIM | No GPS Fix | |
| Flashing Orange and Green | No SIM | GPS Fix | |
| Flashing Red | SIM OK | No GSM | No GPS Fix |
| Flashing Green | SIM OK | No GSM | GPS fix |
| Solid Red | SIM OK | GSM OK | No GPS Fix |
| Solid Green | SIM ok | GSM ok | GPS Fix |
| 1 Second flutter (red or green depending on GPS) | Message sent or received | | |
| Orange flutter at power up | Internal battery installed | | |

Note: It takes 20-60 seconds before the Locator can detect that the SIM card is not properly installed.

3.2 Verifying the Locator's Operation

To ensure the L2000W Locator is operational, perform the following checkpoints by observing the LED light on the device:

If the device LED is demonstrating and uninterrupted green light:

- The Locator has both GPS and GSM network coverage. If you generate and ignition event you will see the data on you fleet management login screen.

If the LED is flashing Red one second off and one second on:

- The Locator has neither a GPS fix nor GSM cell coverage. Please ensure that the GPS antenna has a clear line of sight to the sky and that your vehicle is within a GSM network area.

If the device LED is demonstrating an uninterrupted Red light:

- The device has cell network activation but no GPS network visibility. Please ensure that the GPS antenna is properly connected to the device and has a clear view from the sky.

If the LED is flashing Green one second off and one second on:

- The device has GPS activation but no cell network. Please ensure that the GSM antenna is properly attached to the device and that your vehicle is in an area with cell network coverage.

If the LED is flashing Orange and Green:

- There is a problem with the SIM. Ensure the SIM card is correctly in place. Also ensure the SIM is correctly enabled for the wireless network.

If the LED is flashing Orange and Red:

- There is a problem with the SIM and no GPS network visibility. Ensure the SIM card is correctly in place. Check that the SIM is correctly enabled for the wireless network. Make sure the GPS antenna is properly connected to the device and has a clear view of the sky.

If the LED Flutters Orange at power up:

- The internal battery is installed. If this Locator is battery powered and the LED DOES NOT flutter at start up, then the battery is not properly connected. Check the battery's connection and power. Please note, in some cases the battery is not charge when it is shipped. After you have connected the battery and connected the unit to a power source, wait 4-5 minutes until the battery is charged to a level that can light the LED.

4. CONTACT INFORMATION

If you have any questions, please contact:

Global Tracking Communications support line:

951-674-1695 or 1-866-320-5810

Email: support@gpstrackit.net

5. IMPORTANT SAFETY AND HAZARDS AND CONSIDERATIONS

Important!

Do not install or operate the Locator in areas where explosive atmospheres may be present.

Do not install the Locator in any vehicle powered by liquefied petroleum gas or governed by petrochemical regulations without additional operational safety precautions being taken.

Do not turn on or operate the Locator near life support equipment or aircraft.

6. WIRING DIAGRAM OVERVIEW

