LED Search Light w/ Wireless Remote
12V DC - 3,100 lms - Spot/Flood, 360° Rotation - Magnet Mount, IP69K
Instruction Manual

Thank you for your purchase of the Larson Electronics GL-2051-F-M LED Search Light.

IMPORTANT

READ CAREFULLY BEFORE INSTALLING THIS FIXTURE. SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE. THE GL-2051-F-M MUST BE WIRED IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE AND ALL APPLICABLE LOCAL CODES. PROPER GROUNDING IS REQUIRED FOR SAFETY.

WE STRONGLY ENCOURAGE ONLY A LICENSED ELECTRICIAN INSTALL, OPERATE AND MAINTAIN THIS PRODUCT. IF YOU ARE NOT QUALIFIED OR UNFAMILIAR WITH ANY ASPECT OF THIS INSTRUCTION SHEET, CONSULT AN ELECTRICIAN. THERE ARE NO SERVICEABLE PARTS INSIDE.

WARNING: MAKE SURE POWER IS TURNED **OFF** BEFORE STARTING THE INSTALLATION OR PERFORMING ANY MAINTENANCE.

RISK OF FIRE/ELECTRIC SHOCK – DISCONNECT POWER AT BREAKER BEFORE INSTALLING OR SERVICING.
RISK OF PERSONAL INJURY – FIXTURE MAY BECOME UNSTABLE OR DAMAGED IF NOT INSTALLED PROPERLY.
RISK OF BURN – ALLOW FIXTURE TO COOL BEFORE SERVICING.

Safety Information for Installation or Service

- To properly install or service this equipment, you must have a good understanding of automotive mechanical and electrical procedures and systems, along with proficiency in the installation and service of safety warning equipment. Always refer to the vehicle's service manuals when performing equipment installations on a vehicle.
- To be an effective warning device, this product produces bright light that can be hazardous to your eyesight when viewed at a close range. Do not stare directly into this lighting product at a close range, or permanent damage to your eyesight may occur.
- Do not install the light system in an area that would block, impair, or blind the driver's vision. Ensure that the light system is mounted in a position that is outside the driver's field of vision so the driver can safely operate the vehicle.
- A light system is a high current system. For the system to function properly, a separate negative (–) connection and positive (+) connection must be made. All negative connections should be connected to the negative battery terminal, and a suitable fuse should be installed on the positive battery terminal connection as close to the battery as possible. Ensure that all wires and fuses are rated correctly to handle the device and system amperage requirements.
- Never attempt to install aftermarket equipment that connects to the vehicle wiring without reviewing a vehicle wiring diagram available from the vehicle manufacturer. Ensure that your installation will not affect vehicle operation or mandated safety functions or circuits. Always check the vehicle for proper operation after installation.
- The lighting system components, especially the outer housing, get hot during operation. Be sure to disconnect power to the system and allow the system to cool down before handling any components of the system.
- Do not mount a radio antenna within 18 inches (45.7 cm) of the lighting system. Placing the antenna too close to the lighting system could cause the lighting system to malfunction or be damaged by strong radio fields. Mounting the antenna too close to the lighting system may also cause the radio noise emitted from the lighting system to interfere with the reception of the radio transmitter and reduce radio reception.
- Do not attempt to wash any unsealed electrical device while it is connected to its power source.
- DO NOT connect this system to the vehicle battery until ALL other electrical connections are made, mounting of all components is complete, and you have verified that no shorts exist. If the wiring is shorted to the vehicle body or frame, high current conductors can cause hazardous sparks, resulting in electrical fires or flying molten metal.
- DO NOT install equipment or route wiring (or the plug-in cord) in the deployment path of an airbag.
- Before drilling into a vehicle structure, ensure that both sides of the surface are clear of anything that could be damaged. Remove all burrs from drilled holes. To prevent electrical shorts, grommet all drilled holes through which wiring passes. Also, ensure that the mounting screws do not cause electrical or mechanical damage to the vehicle.

- Because vehicle roof construction and driving conditions vary, do not drive a vehicle with a magnetically mounted warning light installed. The light could fly off the vehicle, causing injury or damage. Repair of damage incurred because of ignoring this warning shall be the sole responsibility of the user.
- Locate the light system controls so the VEHICLE and CONTROLS can be operated safely under all driving conditions.
- After installation, test the light system to ensure that it is operating properly.
- Test all vehicle functions, including horn operation, vehicle safety functions, and vehicle light systems to ensure proper operation. Ensure that the installation has not affected the vehicle operation or changed any vehicle safety function or circuit.
- Scratched or dull reflectors or lenses will reduce the effectiveness of the lighting system. Avoid heavy pressure and use of caustic or petroleum-based products when cleaning the lighting system.
- Replace any optical components that may have been scratched or crazed during system installation.
- Do not attempt to activate or deactivate the light system controls while driving in a hazardous situation.
- You should frequently inspect the light system to ensure that it is operating properly and that it is securely attached to the vehicle.
- After installation and testing are complete, provide a copy of these instructions to instructional staff and all operating personnel.
- File these instructions in a safe place and refer to them when maintaining and/or reinstalling the product. Failure to follow all safety precautions and instructions may result in property damage, serious injury, or death.

Contents Table

Qty.	Description
3	#8 Pan Head Phillips Screw
3	#10 Pan Head Phillips Screw
3	1-3/4-inch #10 Machine Screws
3	7/8-inch #10 Machine Screws
3	#10 Machine Nuts
1	Remote
2	AAA Batteries

Specifications Table

Nominal Input Voltage	12 Vdc
Input Current	3.0 A
Height	Perm Mt: 7.10 inches (18.0 cm)
	Mag mt: 6.94 inches (17.6 cm)
Diameter	Perm Mt: 6.54 inches (16.6 cm)
	Mag Mt: 5.19 inches (13.2 cm)
Weight	Perm Mt: 2.4 lb (1.1 kg)
	Mag Mt: 2.5 lb (1.1 kg)
Wireless Operating Frequency	2.4 GHz

Unpacking

After unpacking the search light, inspect it for damage that may have occurred in transit. If there is damage, file a claim immediately with the carrier, stating the extent of damage. Carefully check all envelopes, shipping labels, and tags before removing or destroying them. If installing a permanent mounted search light, ensure that the parts listed in the Contents Table are included in the package.



Installation

Attaching the Mounting Flange

The mounting flange shipped with the unit is removable. You can either leave it attached the search light before installation or attach the flange to the vehicle first. If desired, permanently lock the flange to the base using the three #8 screws provided. See Figure 1.

⚠ WARNING

***DO NOT DRIVE WITHOUT FIRST MOUNTING THE SEARCH LIGHT TO THE FLANGE:* Because vehicle roof construction and driving conditions vary, do not drive a vehicle if the search light is not attached to the flange. The light could fly off the vehicle, causing injury or damage. Repair of damage incurred because of ignoring this warning shall be the sole responsibility of the user.**

To attach the mounting flange:

1. Locate the detent on the search light and one of the two detent notches on the flange.
2. Align the search light as shown in Figure 1.
3. Push the search light down completely and turn clockwise 1/8 turn until the detent locks in place.

To remove the search light from the flange:

1. Use a flat-tipped screwdriver to push the detent while turning the search light counterclockwise.
2. Pull up when the detent is free of the notch.

If desired, permanently lock the flange to the base using the three #8 screws provided. See Figure 2.

Figure 1: Search light mounted on flange

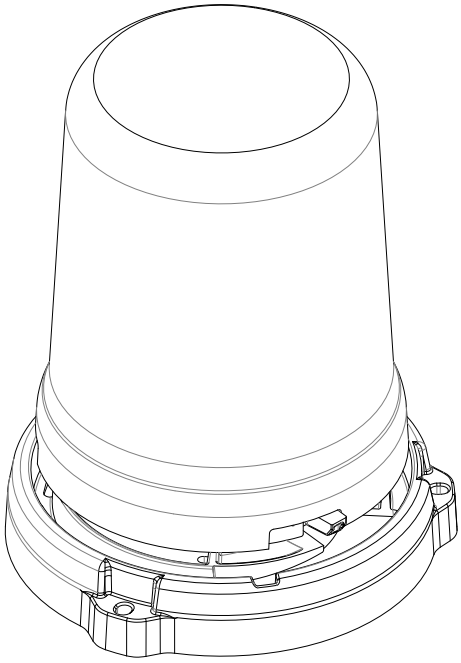
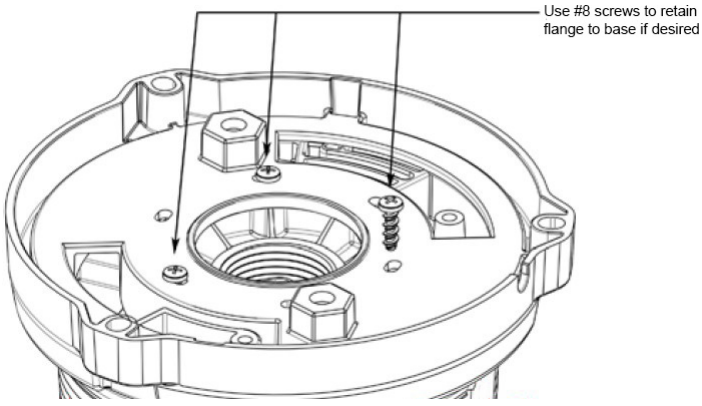


Figure 2: Permanently locking the flange



Wiring

NOTICE

REVERSE POLARITY/MISWIRING: To avoid damage to the light, ensure that the input voltage is the same as the voltage rating of the light. Ensure that correct polarity is observed. Also ensure that the unit is properly fused with a 5 A fuse.

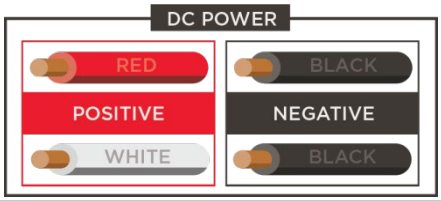
To wire the search light:

1. Determine the required length of wires needed. The search light is supplied with 6-Inch 20 AWG wires that can be connected to longer wires if needed. For lengths up to 15 feet (5 m), use a minimum 18 AWG (1 mm) wire. For lengths over 15 feet, use a minimum 16 AWG (1.5 mm) wire.
2. Install a 5 A fuse and fuse holder to the positive (+) terminal at the voltage source. Connect one side of the power switch to this fuse. Connect the light's red wire to the switched terminal of the switch.
3. Connect the black (–) wire from the search light to a known good vehicle ground as close to the unit as is practical.

Warning: Always check product label for correct input voltage, voltage may vary by model!!

Table 3: Wire Connections

Color	Description	Connection Point
Black	Ground	Battery Negative
Red	Mode 1	Switched Positive 12 Vdc



Cigarette Plug models:

Some models will include a cigarette plug with integral fuse and power switch. The switch may be used to remove power from the light. If direct connection to the power source (not using the cigar lighter plug) is desired, a user-supplied inline fuse holder and five-amp fuse must be installed in the power cord's ribbed (positive) lead.

For 24V models:

24V models will have a small transformer included, that must be installed inline between the light and power source, to allow the light to be hooked up to 24V power supply. Rather than wiring the light to the power source, simply wire the input side of the transformer to the power source instead, then wire the light to the output side of the transformer.

Permanently Mounting

NOTICE

DRILLING PRECAUTIONS: **When drilling holes, check the area you are drilling into to ensure that you do not damage vehicle components while drilling. All drilled holes should be deburred, and all sharp edges should be smoothed. All wire routings going through drilled holes should be protected by a grommet or convolute/split loom tubing.**

To permanently mount the search light:

1. Scribe the locations of the three mounting holes on the mounting surface using the desired mounting holes in the flange or base as a guide. There are two sets of evenly spaced holes 120° apart on the bottom of the search light itself. Holes for the #8 self-tapping screws are on a 2.75-inch diameter (where the lines intersect the inner circle in Figure 3). The holes for the #10 self-tapping screws are on a 4-inch diameter (where the lines intersect the middle circle in Figure 3). The 4-inch pattern is the preferred pattern for permanent mounting. If one of the optional mounting flanges is to be used, three #10 screws are on a 6.00-inch circle (where the lines intersect the outer circle in Figure 3).
2. Drill three 0.177-inch diameter holes for the #8 screws, or three 0.201-inch diameter holes for the #10 screws.
3. Scribe a hole for the wires or an installer-supplied bushing at the center of the screw pattern.
4. Drill a suitably sized hole at the scribed position for the bushing and wire routing hole. Otherwise, route the wires through the drain notch in the optional mounting flange. Leave open space for water to drain.
5. Align the search light over the drilled holes. Route the wires through the wire routing hole. Seal the hole with a bushing or RTV if entering a watertight compartment.
6. Secure the base to the mounting surface with the selected panhead screws.

Figure 3: Drilling (Not to scale)

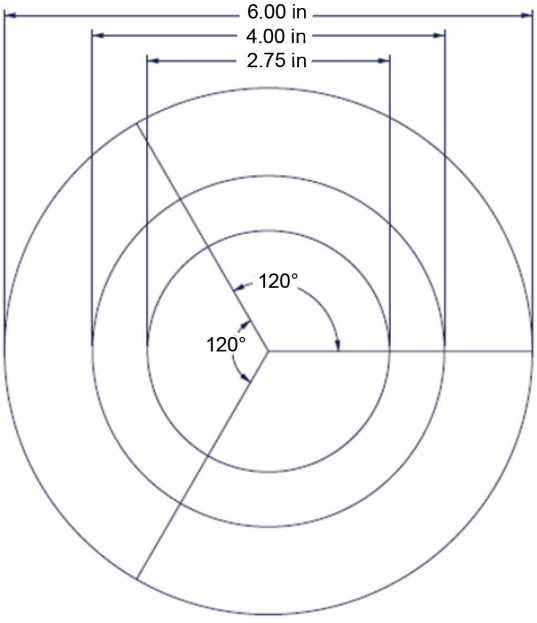
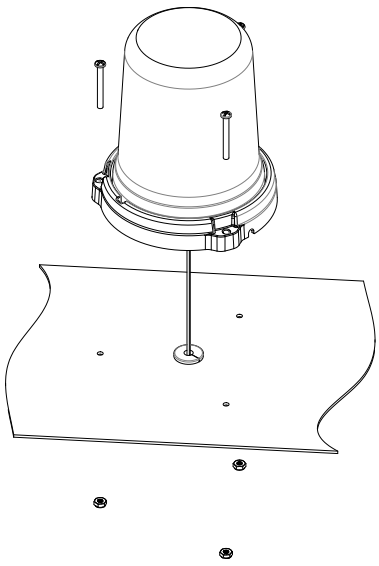


Figure 4: Exploded view of installation



Magnetic Mounting

⚠ WARNING

DO NOT DRIVE WITH MAGNETICALLY-MOUNTED SEARCH LIGHT INSTALLED: Because vehicle roof construction and driving conditions vary, do not drive a vehicle with a magnetically-mounted search light installed. The search light could fly off the vehicle, causing injury or damage. Repair of damage incurred because of ignoring this warning shall be the sole responsibility of the user.

The holding power of magnetic mounting systems depends on the surface finish, surface flatness, and thickness of the steel mounting surface. Therefore, to promote proper magnetic mounting:

- Keep the mounting surface and magnets clean, dry, and free of foreign particles that prevent good surface contact.
- Ensure that the mounting surface is flat.
- Do not use a magnetic mounting system on vehicles with vinyl tops.
- To prevent the sliding of the search light on the mounting surface, avoid quick acceleration and hard stops.

Magnetic mounting provides a secure, temporary mounting method for most installations. However, it is not intended for use on the exterior of a moving vehicle.

To temporarily mount the search light to a vehicle with magnetic mounting:

1. Place the light assembly on a level, steel surface. Ensure that the light is placed to promote maximum coverage and range of the search light.
2. Insert the plug at the end of the cable assembly into the 12-volt power outlet socket.
3. Turn the power on and off using the power switch on the plug. To show that the power is on, a pilot light turns on.
4. Use the remote to operate the light.

NOTE: The lighter plug has an integral fuse and power switch. The switch may be used to remove power from the light. If direct connection to the power source (not using the cigar lighter plug) is desired, a user-supplied inline fuse holder and five-amp fuse must be installed in the power cord's ribbed (positive) lead.

Controller Setup

To set up the controller:

1. Open the battery compartment by removing the #1 Phillips head screw and removing the cover.
2. Install two AAA batteries in the orientation indicated in the battery compartment.
3. Replace the cover and secure with the screw.

Pairing Procedure:

The search light and the controller shipped with it will be paired as #1. If this is lost, if adding additional search lights into a controller's memory, or if a replacement is needed, follow this pairing procedure.

1. With the search light powered down, hold the desired Preset button for five seconds to begin the pairing procedure.
2. When the button begins to flash blue, apply power to the search light.
3. Wait until the Power button begins to flash green and the Preset button begins to flash red.
4. To confirm the pairing, short press the Power button. The Preset button will turn solid green.
5. To cancel pairing and continue to scan for a new search light, short press the Preset button. The Preset button will begin to flash blue again.
6. Repeat this procedure for the remaining two Preset buttons with additional search lights.

Setting the Memory:

1. After moving the search light into position, hold one of the Memory buttons for five seconds until the Power button blinks.
2. The memory is now set, and the unit can be moved to this position by short pressing the Memory button.

Operation

⚠ WARNING

LIGHT HAZARD: ***This product contains a high intensity LED device. To prevent permanent eye damage, DO NOT stare into the light beam at close range.***

When the search light is powered on, it will perform a calibration procedure. It will rotate to zero and return to the last position it was at when powered off.

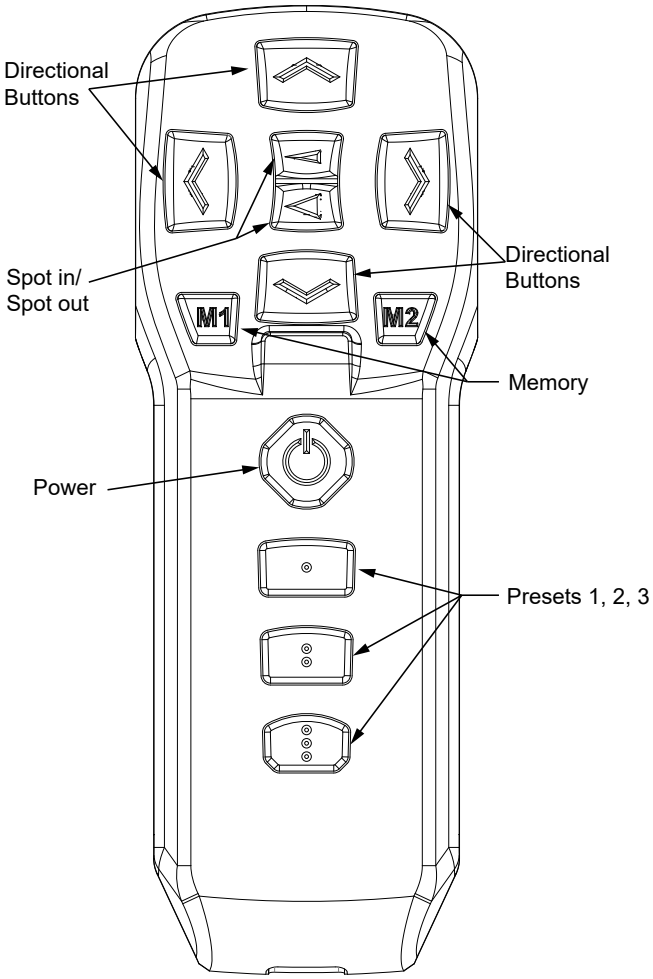
Select a unit to be controlled from one of the three presets by pressing its button. If it is paired and connected, it is made the active connection, and the button turns solid green. If it is only paired, the controller scans for up to 30 seconds (the button flashes blue while scanning) or until it connects. (The button turns solid green.) If no search light has been paired for the selected button, the button flashes red briefly, and if the last active search light is still connected, it will be selected.

Power the unit on and off using the power button.

Aim the light to the work area by using the Up-Down and Left-Right buttons.

Adjust the spot size by using the spot in and spot out buttons. Once a desired position is reached, this may be programmed as a preset by pressing the M1 or M2 buttons for five seconds until the Power button blinks. If the light is moved from this position, it may be returned to by pressing the selected memory button.

Figure 5 Controller



Cleaning

⚠ WARNING

CRAZING/CRACKING Crazing (fine cracks) of lenses causes reduced effectiveness of the light. Do not use cleaning agents (which causes crazing) such as strong detergents, solvents, or petroleum products. If crazing of the lenses does occur, the reliability of light for emergency signaling purposes may be reduced until the lenses are replaced.

NOTICE

CLEANING the POLYCARBONATE LENSES: To extend the life of this device, periodic cleaning is necessary. Clean the lens with a mild, non-abrasive, neutral-pH cleaning agent and a soft, clean cloth. Rinse the device thoroughly to ensure that no cleaning agent residue remains. To avoid water spots, dry the device with a soft clean cloth. Failure to follow this precaution can cause crazing or cracking of the lens/dome and voids the warranty claims for the light.

USE AND CARE

Unauthorized modification may impair the function and/or safety of this device and could affect the life of the equipment. Always check for damaged or worn out parts before using the device. Store it in a secure place out of the reach of children when not in use. Inspect for good working condition prior to storage and before re-use.

REPLACEMENT PARTS

The GL-2051-F-M is designed to provide years of reliable performance. Should the need for replacement parts arise, please contact Larson Electronics.

THESE INSTRUCTIONS MAY NOT COVER ALL DETAILS OR VARIATIONS OF THIS PRODUCT FOR YOUR EQUIPMENT OR INSTALLATION REQUIREMENTS. SHOULD FURTHER INFORMATION NOT COVERED BY THESE INSTRUCTIONS BE REQUIRED, PLEASE CONTACT LARSON ELECTRONICS BY EMAIL AT SALES@LARSONELECTRONICS.COM OR BY PHONE AT 1-877-348-9680 FOR FURTHER ASSISTANCE.

PLEASE VISIT LARSONELECTRONICS.COM FOR **WARRANTY** AND **RETURN** INFORMATION.