

Dual Glow Safety System

General Construction Equipment Installation Guide

This guide outlines a typical Guardian Glow Dual Glow installation for construction equipment such as excavators, wheel loaders, skid steers, dozers, telehandlers, compact equipment, and similar mobile machinery. Exact mounting, cable routing, and electrical connection will vary by machine. AVR Global Technologies engineering support is available for application-specific guidance.

Before installation: Verify the equipment electrical-system voltage and polarity. Guardian Glow lighting supports DC +10-80V. Isolate electrical power according to the equipment manufacturer's service procedures before making connections.

System Specifications

Electrical	DC +10-80V
Housing	Aluminum die-cast housing
Protection / Certification	IP67 / CE with GORE
LED	OSRAM LEDs
Working life	50,000 hours
Environmental range	-49°F to 185°F
Cable options	Standard/custom; 6 ft, 12 ft, 25 ft, 50 ft options

Typical Electrical Connection



*Circuit-protection type and rating must be selected for the specific machine, cable, and installation. Contact AVR engineering for assistance.

Installation Procedure

1. Confirm the machine electrical system

Identify the equipment battery or an approved accessory-power connection. Verify that the system is within the Guardian Glow DC +10-80V operating range and confirm polarity before installation.

2. Select light locations

Choose locations that create the desired projected safety boundary while protecting the lights from direct impact and avoiding interference with the operator, attachments, service panels, visibility, and normal machine operation.

3. Select the mounting method

Magnetic mounting may be used where the machine provides a suitable ferrous surface and the mount remains secure under the expected vibration and operating conditions. For severe vibration, rough terrain, impact exposure, or unsuitable surfaces, use an appropriately engineered secure/permanent mounting method. Confirm retention before returning the machine to service.

4. Route the cables

Route Guardian Glow cables toward the battery or approved power source. Keep wiring clear of hydraulic cylinders and hoses, articulation joints, booms, buckets, lift arms, tracks, tires, steering components, pinch points, exhaust and other high-heat areas, sharp edges, and service-access points. Allow sufficient slack only where movement requires it.

5. Protect and secure the wiring

Use appropriate clips, ties, loom, conduit, grommets, or other protection where needed. Wiring should be supported so vibration and machine movement do not place tension on connectors or allow abrasion against the equipment.

6. Connect the Dual Glow lights

Connect each light to the supplied Guardian Glow cable/harness. Verify that connectors are fully seated and secured. Do not modify the connectors or wiring unless the configuration has been approved for the application.

7. Connect to equipment power

With power safely isolated, connect the positive (+) lead to the approved positive battery/power connection and the negative (-) lead to the approved negative/ground connection. Install application-appropriate circuit protection. Verify polarity and all connections before energizing the system.

8. Inspect through the full range of motion

Before operation, carefully check cable clearance through the machine's expected range of movement. Pay particular attention to articulation points, booms, lift arms, attachments, steering, and other components that change position during operation.

9. Power on, aim, and test

Restore power according to the equipment manufacturer's procedures. Confirm both lights illuminate. With the machine stationary, adjust the lights until the projected safety boundary is positioned as desired, then reconfirm mounting security.

10. Final operational check

Operate the machine in a controlled area. Confirm that both lights remain operational, the projected boundary stays properly positioned, mounts remain secure, and cables do not stretch, rub, pinch, or interfere with machine movement.

Construction Equipment Installation Considerations

Application-specific checks for mobile machinery

Excavators

Check boom, stick, bucket, upper-structure swing, counterweight, and track clearance. Route wiring so full swing and boom movement cannot pull or pinch the cable.

Wheel / Compact Loaders

Keep cables clear of lift arms, articulation joints, steering movement, bucket linkages, tires, and engine/exhaust heat.

Skid Steers / Compact Track Loaders

Account for lift-arm movement, cab access, attachment changes, tracks/tires, and tight routing areas. Protect wiring from debris and abrasion.

Dozers / Tracked Equipment

Use secure mounting appropriate for high vibration and shock. Protect cable runs from tracks, blade/linkage movement, heat, debris, and service areas.

Telehandlers

Check boom extension/retraction, carriage movement, steering, stabilizers, and attachment clearance. Do not route wiring where telescoping or pivoting components can trap it.

Pre-Operation Checklist

- Equipment voltage and polarity verified
- Lights securely mounted for the operating environment
- Connectors fully seated and protected
- Positive and negative power connections verified
- Appropriate circuit protection installed
- Cables protected from abrasion, heat, pinch points, and moving components
- Full machine range of motion checked for cable clearance
- Both lights powered and aimed correctly
- Installation rechecked after initial controlled operation

Engineering support available

AVR Global Technologies engineers can review the equipment configuration, recommend cable solutions and mounting approaches, and walk your team through installation. Custom cable lengths and configurations are available for application-specific requirements.

Important: This is a general installation guide and does not replace the construction-equipment manufacturer's electrical, service, or safety instructions. Final installation must be appropriate for the specific equipment, attachment configuration, and operating environment.