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70951 Rev C OL2A Manual

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Regulatory Information

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. Installation work must be done by a qualified person(s) in accordance with all applicable local codes and standards.

Safety and Usage Precautions



The lantern's Battery Pack contains lead, lead compounds, and other compounds known to the State of California to cause cancer and reproductive harm. Please handle with care and wash your hands thoroughly after handling the Battery Pack.

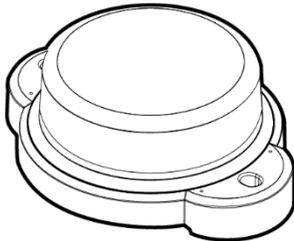
Charge your lantern's Battery Pack periodically. Permanent damage and reduced capacity will result if the Battery Pack is not correctly maintained. Refer to [Battery Charging](#) on page 8 for details.

Lanterns that have been stored may require a top-up charge before they are put into service. The most accurate Battery Pack status reading is obtained when the lantern has been in a dark location and in Off mode for at least 24 hours.

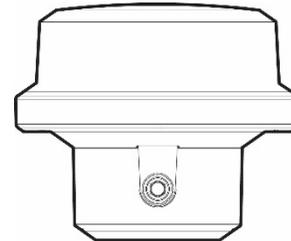
1. Introduction

The OL2A solar hazard marker is:

- Self-contained and solar-powered
- Easy-to-install and low-maintenance with a long-life LED
- Available in red, green, white, yellow and blue
- Easy-to-maintain with replaceable AA NiMH batteries



2-Hole Flange Mount



Pole Mount

Nominal range of a lantern depends on its effective intensity and environmental conditions. For details on how to calculate range, contact your sales representative.

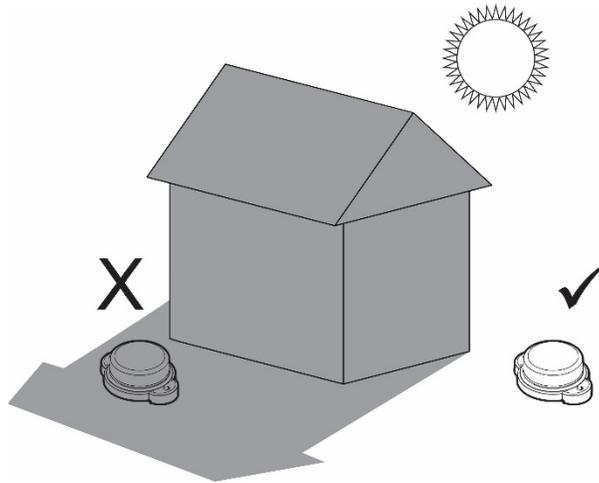
2. Applications

The OL2A is suitable for ground marking, way finding, perimeter marking and other applications where a hazard marking light is required.

3. Installation

Year-round, unrestricted solar exposure is critical to long-term performance. Shade dramatically reduces the ability of the light to charge its battery.

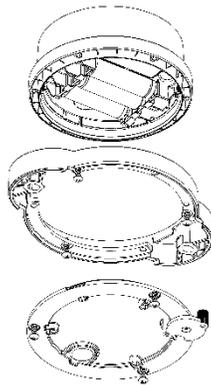
The OL2A has changeable mounts. Either ensure the 2-hole flange or pole mount is attached before lantern installation.



3.1 2-Hole Flange Mount

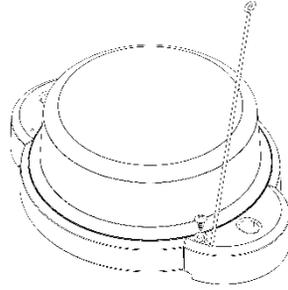
When attaching the 2-hole flange mount, the first 2 steps are handled by manufacturing. Steps 3-5 apply when a distributor or customer is changing the batteries.

1. Use the alignment keys to align the top cover and flange mount. Press together.
2. Attach the mount to the top cover using the provided 3 screws. Do not over tighten!
3. Apply a thin coat of silicone lubricant to the bottom cover o-ring.
4. Align the bottom cover and press into the top cover. It only fits one way.
5. Secure the bottom cover with the provided 3 screws. Do not over tighten!



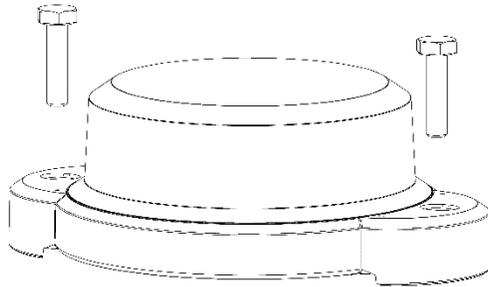
Up to four bird deterrents can be installed:

1. Insert the provided screw through the bird deterrent.
2. Drive the screw into one of the four small holes on the top of the mount. Do not over tighten!
3. Bend the bird deterrent as required.



To install the lantern:

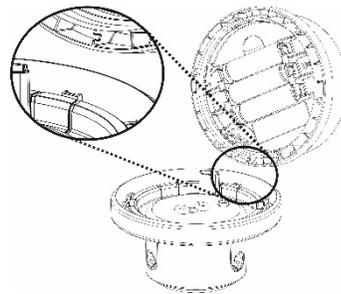
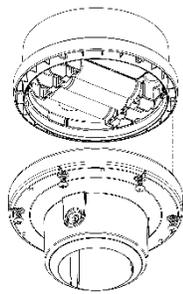
Fix in place with 2x bolts, studs and nuts, nails or screws. Recommended bolt size is 1/4-20 UNC or M6.



3.2 Pole Mount

Install the pole mount:

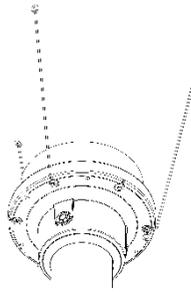
1. Apply a thin coating of silicone lubricant to the pole-mount o-ring.
2. Use the alignment keys (shown on right below) to align the top cover and pole mount.
3. Attach the mount to the top cover using the provided 6 screws. Do not over tighten!



Alignment Keys

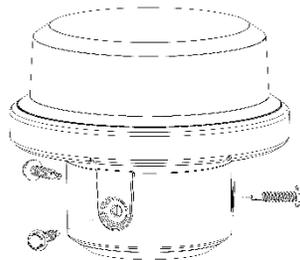
Up to 6 bird deterrents can be installed:

1. Insert a mounting screw through the bird deterrent
2. Install the screw. Do not over tighten!
3. Bend bird deterrent as needed



Install the lantern:

1. If required, insert the reducing sleeve into the pole mount. Note that it aligns only one way.
2. Slide the lantern and sleeve over the pole; press down to ensure lantern is well seated.
3. Secure with the provided 3 screws; if required, drill 1/8 - 9/64 in. [3.2 - 3.6 mm] pilot holes and then install the screws.



4. Operation

The solar panel charges the battery in daylight using the Energy Management System (EMS). The capacity of the battery ensures that even with poor levels of sunlight over an extended period, the lantern has enough reserve power to continue to perform reliably. Stored battery energy then powers the LED during the night.

The change from night-to-day or day-to-night is called a transition. To avoid false transitions and ensure stable operation, the transition time is 2 minutes. For example, 2 minutes of darkness is needed for the lantern to switch to night operation.

4.1 Programming

The OL2A is configured using the IR programmer. The lantern’s mating IR receiver is on an energy-saving sleep cycle.

Press and hold  for 2 seconds to awaken the IR receiver and begin communication with the lantern:

The lantern is now ready to accept programming. Note that the lantern will quickly flash after every key it receives. All programming codes follow the same sequence:



The number symbol # represents 0 - 9. Commands can be rejected if they are unsupported, contain an incorrect key sequence or have an effective intensity too high for the programmed flash code.

4.2 Setting the Flash

To set the flash pattern, enter its flash code using the IR programmer. See the [Flash Codes](#) on page 13 for details.

Example: Enter      For quick flash Q 1s 0.3 (flash code 129)

4.3 Setting the Intensity

The OL2A is programmed using effective intensity. Effective intensity is the brightness of a flashing light as perceived by the human eye (as opposed to peak intensity, which is the actual intensity of a light during a flash). Effective intensity is calculated using the following equation:

$$\text{Effective Intensity (cd)} = \frac{\text{Peak Intensity (cd)} \times \text{Flash Duration (sec)}}{0.2 \text{ (sec)} + \text{Flash Duration (sec)}}$$

The OL2A makes this calculation automatically based on your programmed flash code and effective intensity selected. Note that for a fixed/steady-burning light (code 001), effective intensity equals peak intensity. The range of intensity codes are:

600	0.1-0.4 effective candela
601	1 effective candela
602	2 effective candela
6##	Maximum values vary by flash code and LED color

Example: Enter      For intensity of 5 effective candela



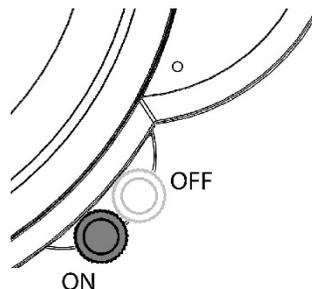
Product performance varies by installation location. Contact your sales representative for further details.

4.4 Turning On/Off

In “on” mode, the OL2A LED turns on at night and off during the day. The lantern charges in sunlight, but the LED remains off when in “off” mode. When turned on again, the lantern activates at its last programmed settings (1 minute preview for daytime activations).

Option 1: Switched Models

Set the switch to on or off position



Option 2: IR Programmer

Point programmer at OL2A from a distance of one foot, press  and hold for 4 seconds. The lantern LED will brighten to on or fade to off to confirm your setting change.

4.5 Checking Battery State of Charge (SOC)

Using the IR programmer, enter:  or     


Good Battery
SOC >70%


Charge Battery
SOC 14-70%


Low Battery
SOC ≤14%, LVD Active

If the battery is ≤14%, Low Voltage Disconnect (LVD) disables the LED and attempts to charge the battery to a sustainable SOC. The LED is re-enabled once SOC is >75%.

4.6 Automatic Light Control (ALC)

During periods of sustained poor solar charging, Automatic Light Control (ALC) may decrease LED intensity based on battery SOC and recent charging trends. When solar charging returns to a sustainable level, ALC increases intensity back to the user setting. ALC may be disabled to keep the lantern at a constant intensity.

Enable ALC:     	Disable ALC:     
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4.7 Battery Charging

The batteries are best charged inside the lantern. The OL2A can recharge 0 V or 0% SOC batteries back to 100% SOC:

Summer sunlight	8-12 hours
Winter sunlight	18-36 hours
60 W incandescent lamp	15-36 hours

A commercial charger designed for 1.2 V AA batteries can also be used.



Do not use a battery charger with >370 mA charge rate. High charge rates will overheat the batteries and cause internal damage.



Take care when charging using a lamp. Provide air circulation or a fan so that the lantern and batteries do not exceed maximum temperature.

4.8 Battery Installation

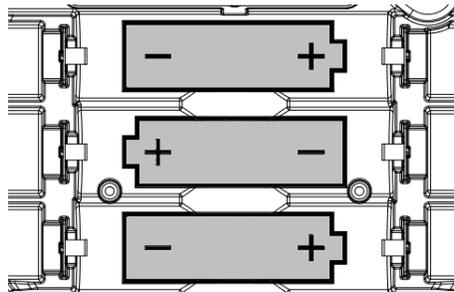
The OL2A comes with 3x AA industrial-grade, high-temperature NiMH batteries. The OL2A will only operate with all 3x batteries installed correctly. The lantern remembers its settings even when the batteries are removed.



Other rechargeable AA NiMH batteries will not void your warranty. Shock, vibration, temperature and optical performance may be limited.

To install batteries:

1. Install batteries, noting their polarity.
2. Apply a thin coat of silicone lubricant to the large sealing o-ring.
3. Align top cover and assembly components; secure with the provided screws. Do not over tighten!



4.9 Storage

Turn the lantern off to store. In switched models, set the switch to the “off” position. To turn off using the IR programmer, press and hold  for 4 seconds.

- ◆ If a lantern detects continuous darkness for 24 hours, like when it’s inside packaging for shipping or storage purposes, it will disable the LED. Upon sensing light, it will enable the LED and continue normal operation.
- ◆ Check the battery state of charge every 1-2 months and charge if required.
- ◆ High-grade NiMH batteries shipped with the OL2A can be stored without any charging for up to 12 months with no battery damage.

4.10 Troubleshooting

LED is off during the night	Batteries are low and lantern cannot turn on	Charge the lantern or replace the batteries
	Batteries are low and LVD is active	<ul style="list-style-type: none"> • Confirm with code 810 using IR programmer. • Charge lantern or replace batteries. • Decrease effective intensity to a sustainable level.
	Switch is off	Switch to on.
	Night not yet detected	Wait for the lantern to detect 2 minutes of consistent “dark”.
	Nearby light source is illuminating the lantern	Move away from light source, turn off unneeded light or shield lanterns
	Solar panel is not charging the battery well during the day	Under bright sunlight, enter code 815 using the IR programmer: <ul style="list-style-type: none"> • 1x flash= too low for charging • 2x flashes = solar panel is fine
No response to IR programmer	Batteries are very low and lantern cannot turn on	Charge the lantern or replace the batteries
	Sunlight is obscuring IR signal	Move the IR programmer closer to the lantern
Moisture inside	Condensation	Ensure the vent on the bottom cover is not dirty or obstructed
	Seal failure	<ul style="list-style-type: none"> • Ensure the bottom cover o-ring is dry (no water) and lubricated.

		<ul style="list-style-type: none"> • Ensure o-ring is not pinched and all screws are fully installed. • Ensure bottom cover is fully seated to ensure O-ring seals properly
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5. Specifications

Optical	29 cd peak intensity; see below High-power LED, >100,000 hours lifetime Red, green, white, yellow and blue chromaticity Proprietary optical design 40 flash patterns
Divergence	>8° FWHM vertical divergence
Solar Panel	Best-in-class high-efficiency solar cells 0.6 W
Battery	3 AA high-temperature nickel-metal hydride (NiMH) batteries 1.2 V nominal each -40 to 185 °F (-40 to 85 °C) ambient 5-year battery life; Replaceable and recyclable
Energy Management System	Intelligent, microprocessor EMS
Automatic Light Control (ALC) 2.0	When enabled, ALC adjusts output intensity in response to unusually low amounts of sunlight to ensure continued operation
Programming	Programmable with optional IR programmer
Construction	Premium-grade UV-resistant, polycarbonate body and lens Waterproof battery compartment with Gore® vent Color indicator matches LED color
Temperature	-22 to 122 °F (-30 to 50 °C) optimal -40 to 176 °F (-40 to 80 °C) maximum
Weight	Flange mount: 0.8 lbs (0.4 kg) Pole mount: 0.9 lbs (0.4 kg)
Mounting	Flange or pole-mount options
Wind Loading	161 mph (72 m/s)
Ice Loading	0.03 psi (22 kg/m ²)
Shock & Vibration	MIL-STD-202G
Compliance	RoHS - Restriction of Hazardous Substances Directive 2002/95/EC (RoHS) CE - EN 60945, EN 61000-6-1, EN 61000-6-2, EN 61000-6-3 FCC - Part 15 of the FCC Rules (see 15.109) ICES - Class [B] digital apparatus complies with Canadian ICES-003
Ingress	EN 60529 IP 68 immersion, 24 hrs at 3' (1 m) MIL-STD-202G immersion & damp heat cycling MIL-STD-810G rain & salt fog
Patents	US and international patents apply

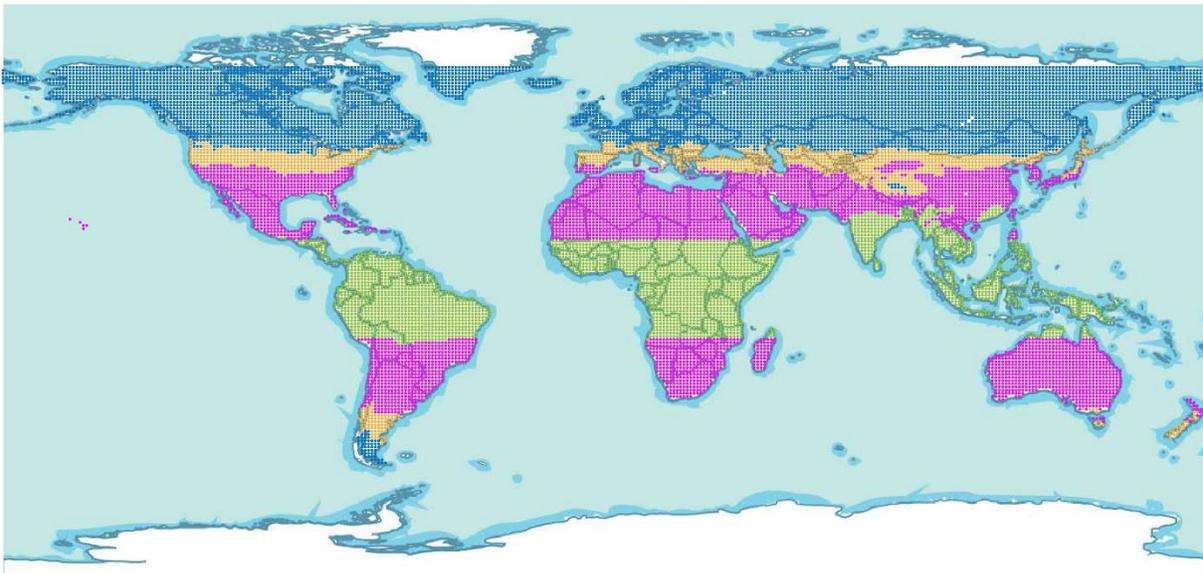
Peak Intensity

Color	Intensity
Red	18 cd
Green	23 cd
White	29 cd
Yellow	25 cd
Blue	8 cd

OL2A Red: Typical Performance

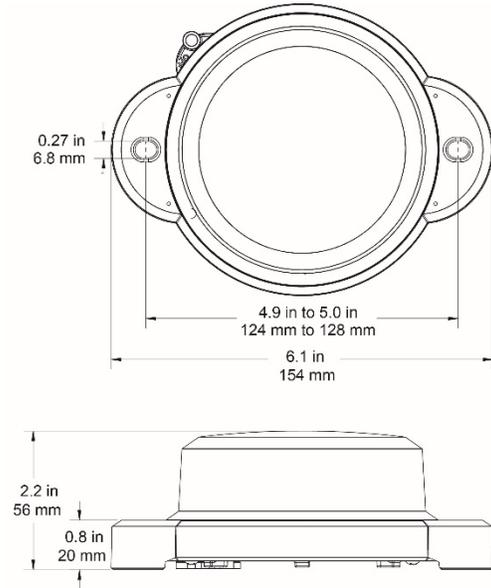
Flash Code 001: Steady-on Dusk-to-Dawn, 6 days autonomy min.

Effective Intensity	Intensity Code		Effective Intensity	Intensity Code
0.4 cd	600		2 cd	602
1 cd	601		3 cd	603



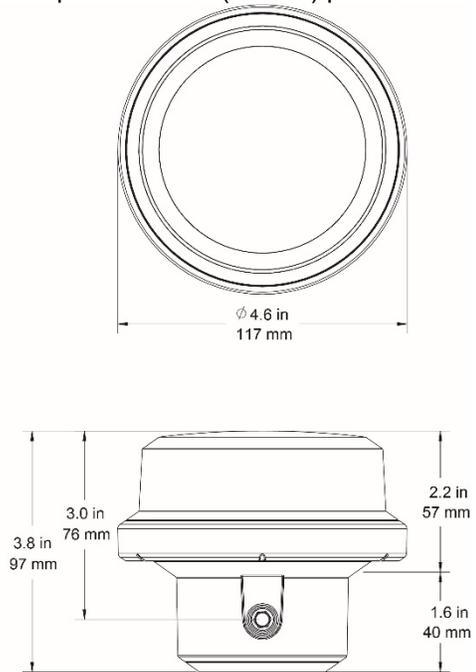
Dimensions

Flange Mount



Pole Mount

With sleeve: 1.9" (48 mm) pole ID
Without sleeve: 2.4" (61 mm) pole ID
Over-top mount: 2.8" (71 mm) pole OD



6. Flash Codes

Maximum effective intensity varies by flash code and color. “FL” is the flash duration (seconds) and “EC” is an eclipse (seconds). Intensities are IALA values (10th percentile) over a 360° horizontal measurement.

Flash Code	Flash Character	FL1	EC1	FL2	EC2	FL3	EC3	FL4	EC4	FL5	EC5	Duty Cycle	Maximum Effective Intensity (cd)				
													White	Yellow	Green	Red	Blue
000	off	0	0									0%	0	0	0	0	0
001	F	60	0									100%	29	25	23	18	8
012	FI (2) 6s 0.5	0.5	1	0.5	4							16.7%	20	17	17	12	6
016	FI (2) 8s 0.5	0.5	1	0.5	6							12.5%	20	17	17	12	6
043	FI 1.5s 0.5	0.5	1									33.3%	20	17	17	12	6
044	FI 10s 0.5	0.5	9.5									5%	20	17	17	12	6
049	FI 2.5s 0.3	0.3	2.2									12%	17	15	14	10	5
050	FI 2.5s 0.5	0.5	2									20%	20	17	17	12	6
051	FI 2.8s 0.3	0.3	2.5									10.7%	17	15	14	10	5
052	FI 2s 0.2	0.2	1.8									10%	14	12	11	9	4
055	FI 2s 0.5	0.5	1.5									25%	20	17	17	12	6
058	FI 3s 0.3	0.3	2.7									10%	17	15	14	10	5
059	FI 3s 0.5	0.5	2.5									16.7%	20	17	17	12	6
060	FI 3s 0.7	0.7	2.3									23.3%	22	19	18	14	6
061	FI 3s 1.0	1	2									33.3%	24	20	19	15	7
063	FI 4.4s 0.4	0.4	4									9.1%	19	16	15	12	5
064	FI 4s 0.5	0.5	3.5									12.5%	20	17	17	12	6
066	FI 4s 1.0	1	3									25%	24	20	19	15	7
068	FI 5s 0.3	0.3	4.7									6%	17	15	14	10	5
069	FI 5s 0.5	0.5	4.5									10%	20	17	17	12	6
070	FI 5s 1.0	1	4									20%	24	20	19	15	7
072	FI 6s 0.5	0.5	5.5									8.3%	20	17	17	12	6
078	Iso 2s	1	1									50%	24	20	19	15	7
079	Iso 4s	2	2									50%	26	22	21	16	7
098	Mo(U) 10s 0.3	0.3	0.7	0.3	0.7	0.9	7.1					15%	17	15	14	10	5
099	Mo(U) 10s 0.4	0.4	0.6	0.4	0.6	1.2	6.8					20%	19	16	15	12	5
103	Mo(U) 15s 0.7 0.5	0.7	0.5	0.7	0.5	1.9	10.7					22%	22	19	18	14	6
104	Mo(U) 15s 0.7 0.7	0.7	0.7	0.7	0.7	2.1	10.1					23.3%	22	19	18	14	6
125	Q 1.2s 0.3	0.3	0.9									25%	17	15	14	10	5
126	Q 1.2s 0.5	0.5	0.7									41.7%	20	17	17	12	6
129	Q 1s 0.3	0.3	0.7									30%	17	15	14	10	5
131	Q 1s 0.5	0.5	0.5									50%	20	17	17	12	6
144	Q(4) 20s 0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	16.5			10%	20	17	17	12	6
147	Q(5) 20s 0.3	0.3	0.7	0.3	0.7	0.3	0.7	0.3	0.7	0.3	15.7	7.5%	17	15	14	10	5
160	VQ 0.6s 0.3	0.3	0.3									50%	17	15	14	10	5
174	FI 4s 0.4	0.4	3.6									10%	19	16	15	12	5
178	FI (3+1) 20s 0.5	0.5	1.5	0.5	1.5	0.5	4.5	0.5	10.5			10%	20	17	17	12	6
179	FI (3+1) 20s 0.6	0.6	1.4	0.6	1.4	0.6	4.4	0.6	10.4			12%	21	18	17	13	6
209	Q 1s 0.15	0.15	0.85									15%	12	10	10	7	3
238	CST9	0.6	0.3	0.6	0.3	1.5	56.7					4.5%	21	18	17	13	6
251	FI 3.5s 0.7	0.7	2.8									20%	22	19	18	14	6

7. Maintenance

Although the OL2A is maintenance-free, performance gains can be made. Clean with water and a soft sponge or cloth. A mild, non-abrasive cleanser can be used for more stubborn residue. Clean more frequently during drier months as dust accumulates more quickly. Check the exterior and o-rings for cracks and missing or broken hardware.

8. Recycling

This product may contain substances that could be harmful to the environment or human health if improperly handled at the product's end of life. Check your local municipality for electronics recyclers.



The batteries are rechargeable nickel-metal hydride (NiMH). Consult your local laws for information on recycling.



This product complies with the European Union's requirements according to Directive 2002/96/EC on waste electrical and electronic equipment (WEEE).

9. Warranty

This product is covered by the Flash Technology warranty. Visit solarobstructionlights.com for additional information. Failure to comply with the use, storage, maintenance or installation instructions detailed in this manual could void the warranty. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Before contacting Flash Technology's customer service department, please have the serial number of your light available, a brief description of the problem and all details of installation and recharging efforts.

To contact Customer Service:

Mail: Flash Technology
332 Nichol Mill Lane
Franklin, TN 37067 USA

Phone: 1.800.821.5825

Fax: 1.615.261.2600

Email: customerservice@flashtechology.com

Website: flashtechology.com/obstruction