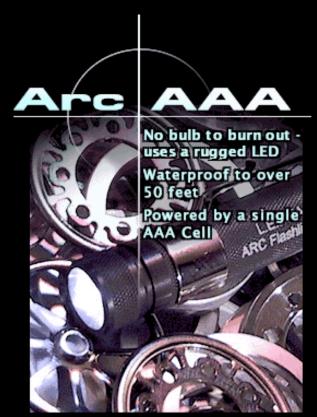


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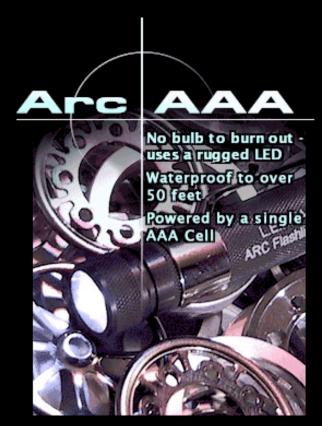
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Buy the Arc-AAA Flashlight.

Buy the Arc-LS

Please note: This website sometimes shows an item as orderable but this does not guarantee that the item is in stock. We may sometimes show the item as orderable because we are expecting stock soon and therefore allowing backorders. Please contact us directly (1-888-752-8554) for a more accurate stock estimate.

Yes. We do accept Paypal. Please total your order (including shipping and tax), email your payment to peter@arcflashlight.com using the paypal system. Please include your shipping address and the exact description of which models you want.

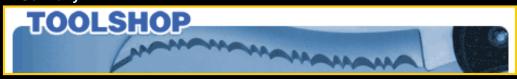
Factory Closeouts and Special Offers

Buy direct from us or from your favorite trusted dealer below:

In Canada:



In Germany:



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In Japan:







In Sweden:

www.exerbe.se Vi säljer Arc Flashlight i Sverige

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These Gift Certificates are good for any purchases from the Arc Flashlight website. Multiples of a certificate can be purchased to create a particular total. For example: \$100 certificate plus a \$20 certificate for a \$120 gift.

\$10 Gift Certificate\$10.00

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\$50 Gift Certificate\$50.00

\$100 Gift Certificate \$100.00

Example of the email a gift recepient will receive





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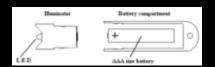
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Arc Flashlight Frequently Asked Questions:

v 1.5 Last updated 6/10/04

Check out our new expanded FAQ on the CandlePowerForums User

Group here.

Arc Flashlight is a manufacturer of LED flashlights producing three basic lines, the Arc-AAA, Arc-AA and the Arc-LS. Within these lines are various models. This is a FAQ (Frequently Asked Questions) reference for anything pertaining to Arc Flashlight.

If you are a new owner of an Arc flashlight, we recommend that you read this FAQ to get full use out of your flashlight.

To search this FAQ while viewing this page with IE, press i° $F_{i\pm}$ and enter your search word.

If you have any suggestions or additions to this FAQ, please post here.

Arc-AAA



What is it?

The Arc-AAA is a small, keychain sized LED flashlight designed for Every Day Carry (EDC). It is powered by a single AAA cell.

Specs

- 20,000 MCD, 3 lumen output (independently verified by several sources)
- Winner of the 2002 Lummie Award for, "Best LED flashlight" and "Best Every Day Carry Flashlight"
- No bulb to burn out- uses a rugged LED
- AAA cell "C no expensive lithium batteries required
- Fits on key chain or use included pocket clip (new!)
- Waterproof to 50 feet (tested 100% to 340 feet)
- Type III HA Anodized Aluminum (more scratch resistant than the cheaper type II used on other flashlights)
- ChemKote interior finish for improved corrosion resistance
- 5 hour run time on good alkaline cell (5 hours to 50% brightness)
- Automatic "Sun/Moon mode" (See below)
- 10 Year warranty
- 2.7 inches long by 0.5 inches in diameter
- Weighs 0.75 ounce (with battery)

Duracell AAA alkaline cell included

The Arc-AAA is available in two grades: Standard and Premium. Both grades use a hand selected white LED but the Premium grade is of a warmer tint of white. Please note that the Arc-AAA is smaller than it may appear. The actual diameter is less than an AA cell and about 1/2 inch longer.

Retail prices are:

Standard \$28.95 Premium \$39.95

What to expect when ordering the Arc-AAA.

LED types

The Arc-AAA use a 5mm Nichia LED part number NSPW500BS. Like all good LEDs, Nichia bins these LEDs by tint and flux. The Standard Arc-AAA uses a R or S flux and B2 or B3 tint. The Premium Arc-AAA uses a S flux with a B2 or B1 tint. The difference between the Standard and Premium is the Premium will have a warmer tint. All white LEDs tend to have a blue center and the Premiums are no exception. The difference is the Premiums will have less blue than the standards. The S flux is rated at 6400mcd at the factory but we overdrive the LED at approximately 45mA to produce about 20,000mcd.

What is the LE?

The Limited Edition (LE) is an early designation for the Premium Arc-AAA. Starting in 2003, Arc changed the designation of the LE to Premium Edition. Except for the inscription, the flashlights are identical in finish and LED.

Batteries

For the Arc-AAA, we recommend you use the least expensive alkaline cell you can find that does not leak. We use and recommend Duracell brand for our lights. We recommend you check and change the cell from time to time to prevent the cell from leaking and damaging the Arc-AAA. Premium batteries will provide a longer run time but are not worth the extra cost in our opinion. The 5 hour run time estimate for the Arc-AAA is based on continous use with a fresh Duracell Alkaline.

Rechargeable cells will work in the Arc-AAA and produce a slightly dimmer output. The self discharge common to NiCad and NiMH cells may cause the flashlight to not be ready if left unused for an extended period of time. Because an alkaline will last for several month of normal use, we recommend an alkaline cell over a rechargeable.

[b]Cold Weather Performance of Batteries[/b]

Over the years, we have accumulated some experience with various chemistries in cold weather use. The quick answer to cold weather use is Lithiums are better at handling the cold than Alkaline, rechargeables, etc.

With Alkalines, anything below about 40 degrees Fareinheit could cause the light not to turn on or only dimly. Since all of our lights are designed for personal use, they typically are carried in a warm pocket. This will help with cold weather use. If the light is not carried in your pocket and it won't start because the battery is too cold, remove the cell and warm it up in your hands. Once the cell is warm enough to start the voltage converter, it can be exposed to colder tempuratures. This because the converter can operate at a lower voltage once it initially starts and also the light and battery produce a small amount of heat in operation. The Arc voltage converters have a lower startup voltage requirement than most of our competitors. So for given battery, the Arc is more likely to make it work.

Lithiums can operate at 30-40 below zero degrees fareinheit. Startup and rundown performance is excellent.

Run Times

We conservatively estimate the run time with a good cell at around 5 hours. Although, your results may vary and many users report run times of over 6 hours. Every Arc model will continue to produce light after

their rate run time but at less than 50% brightness. The Arc-AAA for example will still be producing a diminished output after 12 hours of use. With typical usage each cell will last several months. The Arc-AAA will produce a longer total run time than 5 hours if used intermittently.

Sun/Moon Mode

The Arc-AAA includes an electronic regulator circuit that helps maintain a more consistent output during the life of a battery. Compare this to conventional flashlights that more noticeably dim as the battery is depleted. The regulator in the Arc-AAA is a very compact design optomized for "partial" regulation. Please see further down in this FAQ for a more detailed description of regulation.

Basically, "Sun" mode is the bright operation of the flashlight and "moon" mode is the dim light produced by the light when the battery is nearly dead. When stating run time for our lights, we list the "sun" mode length for a given battery type. The Arc-AAA is capable of producing about 5 hours of sun mode.

With only 40% of the remaining capacity left in the AAA battery, the Arc-AAA will still be producing about 80% of it's original brightness.

The transistion from sun to moon is fairly smooth on the Arc-AAA with most battery chemistries and you may not notice it very easily. With alkaline cells, it is not an abrupt change.

Links to Reviews

FlashlightReviews.com

Brocki s Review

Dan; s Data

The LED Museum (Premium Arc-AAA review)

The LED Museum (Standard Arc-AAA review)

The Torch Reviews Site

Competitors

Here's a video showing the difference in efficiency between the Arc-AAA and the Mag Solitaire.

Arc efficiency demonstration (".wmv" 818kb)

Notice the battery is the same in both cases. There are many differences between these two lights. The reason the Arc is brighter is that is uses a LED and other "new" technologies.

A page comparing the Arc-AAA to the CMG Sonic

Accessories

The Arc-AAA is now shipping with a pocket clip.

Maintenance

- 1. Regularly clean the threads of dirt and aluminum oxide (the black gunk)
- 2. Check battery for leakage
- 3. Apply grease to threads and o-ring for good water seal and smooth operation. Almost any kind of grease may be used (Petroleum or non-petroleum is fine)
- 4. Clean battery contacts with a pencil eraser if they get fouled to improve light output.

See the DIY Arc-AAA Maintenance page on how to maintain all the various parts of the Arc-AAA.

Mods

There are several user modifications of the Arc-AAA. This section will be updated.

So far, I have seen mods including:

N-cell version LS versions brass bodies double ended version C, D cell candles

Version History

Not all of the version history of the Arc-AAA is remembered. Arc has upgraded this light many times in the past 2+ years.

- 1.0 First offered in May of 2001. Had gasket instead of o-ring. Type II finish.
- 1.? Switched to O-ring which made the units waterproof
- 2.5 Switched to Type III anodize
- 3.0 Added chem. Kote
- 3.1 Added roll crimp to increase reliability
- 3.2 Change circuit design and layout to slightly increase output
- 3.3 Changed inscription to "Arc" only, circuit to fix regulator stalls

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Arc-AA



What is it?

The Arc-AA is a small, pocket sized LED flashlight designed for Every Day Carry (EDC). It is powered by a single AA cell.

Specs

- 20,000 MCD, 3 lumen output
- Features same circuit as the award winning Arc-AAA
- No bulb to burn out- uses a rugged LED
- Powered by a single, easy to find, AA cell (alkaline, rechargeable, lithium, etc)
- Fits on key chain or carry in pocket
- Waterproof to 50 feet
- Type III HA Anodized Aluminum (more scratch resistant than the cheaper type II used on other

flashlights)

- ChemKote interior finish for improved corrosion resistance
- 10 hour run time on good alkaline cell (10 hours to 50% brightness)
- Automatic "Sun/Moon mode" (See FAQ)
- 10 Year warranty
- 3.0 inches long by 0.7 inches in diameter
- Weighs 1.3 ounces (with lithium battery)
- Duracell AA alkaline cell included

The Arc-AA is available in one grade: Standard with a SB2 Nichia LED.

Retail price is \$34.95

Order page for the Arc-AA

The Arc-AAA borrows many of the features of the Arc-AAA. Please see the Arc-AAA section of this FAQ for more detail.

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Arc-LS



What is it?

The Arc-LS is a series of LED flashlights using the high power Luxeon Star LED from Lumileds. Different power levels and configurations are available. The 1W series is designed for Every Day Carry (EDC).

LS Models:

- First Run This was the first flashlight on the market using a Luxeon Star LED. It was voltage regulated. The LED version used was the Low Dome LED.
- Hybrid This was a hybrid of the rev1 and rev2 technologies
- LS1 This was the first total Rev2.

- LS2 First flashlight on the market to use the High Dome LED. Rev2 tech.
- LS3 First flashlight on the market to use the 5watt Luxeon Star. Rev2 tech. 2x123 battery. Waterproof. Shipped to Arc Fans in January of 2003. Discontinued in favor of longer life emitters and better technology used in the LS5.
- LSL Renamed LS1 with v2.1 improvements. Low Dome LED
- LSH Renamed LS2 with v2.1 improvements. High Dome LED

Standard vs Premium

The Premium units are about 50% brighter than the standard units. They also have a slightly better tint ranking. Please note that the human eye has trouble seeing differences in brightness of 50%. It is more apparent when holding the two units side by side or when using a light meter. The best bang for the buck is the standard. The Premium is for those who need the absolute best. Please see below for more on the different LED types.

Specs for the current LSL and LSH (1W) series

- Winner of the 2003 Lummie Award for, "Best Every Day Carry Flashlight"
- No bulb to burn out- uses a rugged Luxeon Star LED from Lumileds
- DC/DC Setup with current-mode regulator, auto sun/moon mode, multi-battery support, reverse polarity protection, thermal circuit breaker
- LED optics protected by .030" AR coated, scratch resistant LEXAN lens
- 50 feet water proof
- 1x 123 photo lithium pack with tail switch included (battery included), other packs available, see below
- Type III hard anodized/chemkote Aluminum
- Cobalt/Gold positive battery contact
- Simple, reliable housing construction w/knurled grips
- Other power packs available so light can be used with larger but more economical "AA" cells (see order page for details)
- Dimensions with TSP-123 included are 3.2 inches long by .950 inches in diameter
- 2.2 ounces total weight with 123 cell included
- 10 Year warranty/30 day satisfaction guarantee
- Made in the USA

What to expect when ordering an Arc-LS...

Instructions

Insert battery with positive contact facing towards the flashlight head. If a TSP (Tail Switch Pack) pack is used, press tail switch slightly for momentary use or until it clicks for constant on. If P-123 pack is used, twist pack to turn light on and off. Do not over tighten pack.

The LS includes an electronic regulator circuit that helps maintain a more consistent output during the life of a battery. Compare this to conventional flashlights that more noticeably dim as the battery is depleted. In normal operation, the LS will maintain 95% of max output ($_i$ °Sun $_i$ ± Mode) for the useful life of the battery (typically several hours) after which it will transition to $_i$ °moon $_i$ ± mode, which may last as much as an hour. As the LS transitions from Sun to Moon mode, it will flicker for a minute or less. This is normal. Results will vary with battery used, temperature, etc. The light should not flicker with fresh batteries (loosen/tighten the switch if it does).

Online Copy of the Instructions included with each Arc-LS.

LED Types

The LEDs selected for use in the LS are hand sorted to be of the brightest and best tint. We use bin code 3 and 4 in the tint. The standard LS use an M-N flux while the Premium uses a P-Q flux.

Versions

- 0.9 First shipped in December of 2001. voltage regulated, 3-packs,
- 1.0 First shipped in February of 2002. Switched to NX05 optics 400 Hybrid "C Bridge between version 1

and version 2. Had new circuit of version 2 in housing of version 1. Circuit set for 330mA (mistakenly reported as 400mA) 500 hybrid "C Same as 400 but circuit is set for ~400mA (mistakenly reported as 500mA)

- 2.0 New current regulated circuit design, thermal circuit breaker, higher output. Waterproof, slimmer design, lexan protected optics, new 1pc head design
- 2.1 Flex washer (fixes flex failure)

In late 2002, we changed the battery packs from the twist design to the TSP (Tail Switch Pack) design.

Batteries

The most compact configuration is to power the light with a single 123 lithium cell. We recommend the 123 cell pack for light to medium usage because it is more likely to be carried and therefore be available when you need it the most. We have tested 12 different brands of 123 cells and found that all were suitable for use in the LS. Some last longer but cost more. In our tests, we are mostly concerned about the cell leaking and damaging the light. We did not observe any lithium cells leaking when used correctly in the LS. We recommend you purchase 123 cells based mostly on price. However, with alkaline and NiMH, we recommend you purchase based mostly on the reliability of the cell since we have observed that cheaper brands of NiMH and Alkaline tend to leak.

Besides working with alkaline and lithium cells, the LS is also designed to work with rechargeable (NiCad and NiMH) cells. In some cases, an accessory power pack will be required to work with a particular size or combination of cells. The circuit will automatically cut off at about 1.4 volts and will protect your NiMH and NiCad from excessive discharge. Because the LS is a high drain device, NiMH will typically provide superior run time compared to alkaline cells. The circuit will operate in a voltage range of about 1.4 to 3.4 volts. We do not recommend you use batteries over about 3.2 volts as this could possibly damage the LED and circuit. Any damage to the flashlight caused by over voltage is not covered under warranty.

Rechargeable 123's for the Arc-LS

Here's a picture showing the two packs available for the Arc-LSL, LSH series:



Run Times

The Arc-LS has the following average run times:

- 2 hours with a good Lithium 123 cell.
- 1.5 hours with 2xAA alkaline
- 2.5 hours with 2xAA NiMH
- 3+ hours with 2xAA Lithium

Note: these are average and your results will vary. In normal use, the single 123 cell will last about a month.

Because of variations in LED Vf (forward voltage), temperature, cell variations (within the same brand), switch resistance, etc- run times will vary by as much as 50% from unit to unit with the same brand of new battery. This means that a good 123 cell may run in continous mode a total of 1.5 hours to 2.5 hours. Run times for all battery types are lengthened when the light is used intermittantly. With 5 minutes per use, a good 123 cell could provide as much as 2.5-3.5 hours of total usage. That is why the numbers provided in the above list are averages only. Variations of this type is normal for electrical equipment.

Links to Reviews

FlashlightReviews.com
Equipped to Survive

Comparisons

This picture should provide some indication of size and output:





(picture provided by Sean Edwards)







Accessories

Current accessories offered by Arc include:

1x123 size nylon carry pouch TSP2AA power pack 5-pack of 123 cells

<u>Please</u> check our <u>website</u> for a current list of accessories.

Maintenance

Please note that the LS ships with a thin plastic lens protector applied to the lexan lens (front part of flashlight). This protector can be left on or removed, it is your choice. If left on, it will help protect the lens from scratches. If you choose to remove it, this may be done by using a soft sharp implement like your fingernail or a plastic pick.

The o-ring is made of Buna-N (Nitrile) and can be used with petroleum or silicone based grease. About every 2-6 months, the o-ring can be lubricated with silicone or similar type of grease. Your local electronics store sells silicon grease for \$3-4 a tube. Only a small amount of grease is needed to make the threads and o-ring smooth and quiet. Over time, the threads will accumulate a dark residue composed of dirt and/or aluminum oxide. This can be cleaned by adding oil to the threads (which puts the residue into suspension) and then wiping off with a cloth. The threads should then be lubricated with grease.

The outside of the flashlight can be washed with warm, soapy water. Solvents are not recommended because they may melt the Lexan lens.

The LS optics are protected by an AR-coated Lexan lens. The AR coating is silicon based and will help reduce appearance of scratches. If scratches do appear they can be buffed out with a polycarbonate polish.

In order for the light to attain its 50 feet water depth rating, the battery compartment must be tightened past the o-ring, the lens must be intact and the Kroll tail button tightened snuggly. The rubber boot should be tucked under the lip of the switch and squeezed by the tightened switch. It is common to see a loosened switch boot leak water into the battery compartment. In testing, we have been able to consistently reach 100 foot of depth when the tail switch is properly installed. The optics are rated at 50 feet and this depth should not be exceeded.

Link to DIY maintenance on the Kroll tail switch

Mods

There are several user modifications for the Arc-LS. This will be updated.

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Arc4



What is it?

The Arc4 is an evolution of the Arc-LS series of LED flashlights using the high power Luxeon Star LED from Lumileds. Different power levels and configurations are available. These lights are designed for Every Day Carry (EDC) use.

Standard vs Premium

The Premium units use less power from the battery than standard units. This is because the LEDs used are more efficient. This improves their run times at the same brightness. They also have a slightly better tint ranking. Please see below for more on the different LED types.

Arc4 Specs

- 1 watt, High Dome Luxeon Star LED from Lumileds producing 30 lumens (Premium version, Level 1)
- Proprietary microprocessor based power supply. DC-DC buck/boost topology, Power regulation, Calibrated brightness, multi-battery support, reverse polarity protection
- LED optics protected by new .092" LEXAN lens
- water proof (depth pending)
- 1x '123' 3V Lithium Manganese Dioxide pack with tail switch included (battery included), other packs available, see below
- Mil spec, Type III hard anodized aircraft grade Aluminum
- Cobalt Gold positive/negative battery contacts
- Simple, reliable housing construction w/knurled grips
- Other power packs available in the future
- Dimensions with TSP-123 included are 3.2 inches long by 1.0 inches in diameter
- Total weight with 123 cell and clip installed is 2.9 ounces
- Limited Lifetime warranty/30 day satisfaction guarantee
- Input voltage range: 2.0V to 6.75V

Made in the USA

Primary Features: simple single button user interface, rechargeable battery protection, reverse battery protection without diode penalty, graceful power reduction for weak batteries, thermal management, intrinsically safe design

Settable Options: SOS emergency signal, button lock, force primary, locator flash, ready-for-service indicator, semi-momentary tactical mode, pure-momentary tactical mode

Previous LS designs were current regulated. The Arc4 is the first LS to be Power regulated. This provides an even more precise control of the output brightness.

LED Types

The LEDs selected for use in the Arc4 are hand sorted to be of the brightest and best tint. We use bin code 3 and 4 (W0,X0) in the tint. The standard LS use an N-P flux while the Premium uses a P-Q flux.

Hardware Versions

1.0 - 1/2004 Production

Software Versions

107 First Production Candidate

108 Added triple click to dim

109 Fixed various bugs

111 found bug, fixed in 112

112 Smoothed regulation (first version that was shipped, very small production run)

114 simplified calibration

115 found bug, fixed in 116

116 Improved 123 cell detection and run down (1.8v cutoff), second version shipped, tiny production run 123 Improved brightness calibration sequence. Changed power formulas to increase dynamic range, first "large" production run

Note the software was numbered by the date it was produced. For example, the 116 version was finished on January 16th, 2004.

All models of the Arc4 are programmable and the software can be upgraded. We provide 1 free software upgrade for each Arc4 sold. After that, upgrades costs \$20/unit + shipping each.

Run Times

The Arc4 has the following average run times:

- 20 minutes at level 1 with a good 123 cell
- 45 minutes at level 2 " "
- 2 hours at level 3 " "
- 3 hours at level 4 " " ...

Note: these are average and your results will vary. In normal use, the single 123 cell will last about a month.

Because of variations in LED Vf (forward voltage), temperature, cell variations (within the same brand), inductor variations, etc- run times will vary by as much as 50% from unit to unit with the same brand of new battery. Run times for all battery types are lengthened when the light is used intermittantly.

Links to Reviews

No reviews are available yet.

Accessories

Current accessories offered by Arc include:

1x123 size nylon carry pouch 5-pack of 123 cells

Please check our website for a current list of accessories.

Note: The previous Arc-LS series battery packs are not compatible with the new Arc4 because of the new switch design.

The clip can be removed without affecting the operation of the rest of the light.

Maintenance

Please note that the LS ships with a thin plastic lens protector applied to the lexan lens (front part of flashlight). This protector can be left on or removed, it is your choice. If left on, it will help protect the lens from scratches. If you choose to remove it, this may be done by using a soft sharp implement like your fingernail or a plastic pick.

The o-ring is made of Buna-N (Nitrile) and can be used with petroleum or silicone based grease. About every 2-6 months, the o-ring can be lubricated with silicone or similar type of grease. Your local electronics store sells silicon grease for \$3-4 a tube. Only a small amount of grease is needed to make the threads and o-ring smooth and quiet. Over time, the threads will accumulate a dark residue composed of dirt and/or aluminum oxide. This can be cleaned by adding oil to the threads (which puts the residue into suspension) and then wiping off with a cloth. The threads should then be lubricated with grease.

The outside of the flashlight can be washed with warm, soapy water. Solvents are not recommended because they may melt the Lexan lens.

The LS optics are protected by an AR-coated Lexan lens. The AR coating is silicon based and will help reduce appearance of scratches. If scratches do appear they can be buffed out with a polycarbonate polish.

With each battery change, we recommend that you clean the battery compartment lip of any excess grease or dirt.

Arc4 Demostration Videos

Basic Operation (1.69mb wmv)

Here's the same video at a lower bit rate for those on dial-up: Basic Operation (216kb wmv)

Changing brightness levels (4.55mb wmv)

Changing the battery, RFS, dead battery indication (7.43mb wmv)

Changing levels for the Primary/Secondary settings(6.58mb wmv)

The Options Menu(7.53mb wmv)

Advanced Functions

The Arc4 has many advanced functions, please read the Advanced Instructions for more information.

These instructions will explain how to change the brightness levels, access the options menu, turn on the special functions, etc.

Arc4 Simulators

These simulators will enable you to test out the different functions of the Arc4. Both versions have been tested with Internet Explorer and Netscape Navigator.

Flash version (plug-in required)

Java version)

Other links

Arc4 Pocket reference card

Arc4 testing

Japanese review of Arc4

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Technology of Arc Flashlights

There are several technologies that make the Arc Flashlights possible;

LEDs

"LED" stands for "Light Emitting Diode". Enormously improved since their development in the 1960's, current LED's have surpassed the efficiency of the average incandescent light bulb. Combined with their rugged, unbreakable construction and long life of over 100,000 hours (over 11 years of continuous use) they make the ideal light source for high performance flashlights.

How do White LEDs work?

White LEDs work differently than the other colors because current white LEDs actually use a blue LED with a phosphor cap to produce white light. The phospor converts some of the blue light into red/green which mixes with the blue to produce a white light. Getting this mix is a black art for the LED manufactures and there is currently quite a bit of variation from LED to LED. This also explains why a white LED has a blue cast to it.

LED Bin Codes Explained

In the manufacturing of semiconductor products, there is a variation of performance around the average values given in the technical data sheets. In LEDs, the variation is even greater than traditional CMOS found in your computer.

Like snowflakes, no two LEDs are alike. There are variations in color (tint), brightness (flux), forward voltage (Vf) and beam distribution/artifacts. Most LED manufacturers sort their LED by machine into bins. Each bin has a rank or window of values that all the parts in that bin fit within. In spite of the fact that only some of the variables are binned and the bins are fairly wide there can be quite a few bins. For the Luxeon Star, there are over 400 bin variations. A typical flux bin (Q for example) can have a 10 lumen window which means there will be an appreciable difference between parts even in the same bin.

From one extreme to another, a typical LED from the same production line, can have a 300% variation in one value alone.

Bin codes for 1W.

A large percentage of the LEDs manufactured are unsuitable for flashlights in our opinion. Usually this is because the tint is too green for a white light. Arc hand sorts LEDs for each flashlight we make. With current yields, about 7 percent of the Luxeons received make it into a Arc-LS standard and about 1 percent make it into an Arc-LS Premium. This causes frequent shortages with the Arc-LS.

Even though Arc is so selective on the LEDs used, there will still be variations from unit to unit.

High Dome vs Low Dome

As explained above under how a white LED works, a phospor layer is used to re-emit some of the blue

light. In most white LEDs, the phosphor is applied as a cap or fill around the LED chip ("die").

Lumileds started manufacturing their luxeon stars with a phosphor cap. This is called the "low dome" design because the dome over the LED is low and flat. In 2002, Lumileds improved the Luxeon Star by coming out with the EOS process. This EOS process changed how the phosphor is applied to the die. The die now has a even coating over the entire surface. This change was included with the new invertered die geometry in their "high dome" design. The high dome product has a higher dome over the LED with a rounded tip.

Low dome LEDs, which are in the majority, have a tint gradient across the beam. Typically, the center of the beam is blueish while the edges are greenish.

High dome LEDs have a more consistant tint across the beam. They also have a smaller object size which makes for a more focused beam for a given optic. HDs (high domes) also show the die pattern and bond wires more clearly in the beam.

Here are some helpful links on this subject:

- Low Dome vs. High Dome
- LSH vs. LSL which do you like better and why?
- Perceived Brightness, LD vs HD

Farkle

Occasionaly, you will see a sparkly pattern when looking into an off luxeon star. This pattern can also look like clear plastic chips. We call this "farkle" and it is common to practically all Luxeon Star flashlight that use the NX05 or NX01 optic. This is a cosmetic issue and will not affect the beam quality.

Farkle is caused by small pieces of silicon goop residue around the bezel of the LED. This is left over from the LED manufacture. The silicon is injected into the dome for optical coupling and there is usally a small amount of residue on the outside of the LED package.

At Arc Flashlight, we clean this bezel with alcahol swabs but invariably some farkle will remain. Again, this will not affect beam quality.

Lens Choices

From time to time, people occasionally ask us why we use Lexan in our lenses instead of Pyrex, OCL, sapphire or some other cool material. The pros for glass lenses is usually that they are harder to scratch and they transmit about 7-10% more light.

However, we believe Lexan is some of the best lens material around. The most important quality (beside transparency) in our opinion is its ability to withstand shock.

We have heard repeatedly about Pyrex and other glass/mineral lenses breaking. They chip, crack and plain shatter when the light gets used hard. Often, the lens will chip around the edge (under the bezel where you can't see it) because this is the weakest point. One small chip and that high priced light may no longer be waterproof.

Lexan can absorb more shock. They don't make bullet resistant "glass" out of Pyrex, they make it out of Lexan. Lexan is a brand name. The technical name is polycarbonate.

Sure, you can scratch the lens. But it is also easy to polish. The lens can be polished with toothpaste and a cotton pad.

As far as light transmission, we can easily make this up and more by simply using a more efficient converter and better quality LEDs. The end result is a high tech light that is brighter and more rugged than other lights in its size class.

Why do some manufacturers use Pyrex? Maybe because they buy a bunch of them for their incandescent lines. The old incandescent lights need them because they produce so much heat.

Regulation

In some flashlights, regulation is used to provide a more consistant output. This feature typically appears in more expensive flashlights because it requires either an electronic circuit or some other type of regulator system.

A typical flashlight (without regulation) starts dimming as soon as you turn it on. This is because the battery drops it voltage as it is drained. After 15 minutes or so, a typical light could be as much as 1/2 the brightness as when it was first turned on. The rate of dimming varies with battery type, flashlight design, etc. LEDs are even more prone to dimming compared to incandecents (bulbs) when used in high brightness designs. This is because incandecent bulbs have a slight self-regulating effect.

Some manufacturers advertise their LED flashlights with incredible claims like, "over 50 hours of run time!", etc. Yes, these lights will *produce light* for over 50 hours but the light will be quite dim at that point. Didn't you buy that light to be as bright as when you bought it at the store?

Regulators cause the light to maintain a consistantly bright output, even as the battery becomes depleted. As a result, regulated lights have a shorter advertised run time but the run time is more realistic for what you buy a light for.

Another advantage to regulated lights is that is makes it easier to use your batteries up completely. Non-regulated lights may be begging you to change out the batteries when there is still 50% power left.

There are several types of regulation. 3 types in particular are voltage current and power regulation. The Arc-AAA is partially voltage regulated, the LSL/LSH is current/thermal regulated and the Arc4 is power/thermal regulated.

There are many threads here in the Arc forum about regulation. Use the search function of the forum to find relevant topics.

Why is the Arc-AAA partially regulated instead of fully regulated?

Step-up

A "step-up" is an electronic circuit that multiplies the battery voltage to a level sufficient to brightly power the LED. Including a step-up in a flashlight allows the designer to use fewer cells, thereby making the light easier to carry.

A lot of simple LED flashlight just have three cells and a resistor to run the LED. The manufacturers tout these as "high tech", etc. Sometimes, they make the light small but cheap by using hard to find batteries that have higher voltages. However, these odd batteries usually provide poor "bang for the buck" and also are hard to find in an emergency.

Using a "step-up" allows the light to be made small enough to carry but not require unusual batteries. Step-ups are known as, "DC-DC Power Converters" by those in the electronic trade. Within the converter family, their are various topologies available. The Arc using a switching boost topology.

Sometimes a regulator is included with the step-up to provide a compact and consistant system.

Battery chemistries

Arc flashlights are compatible with various battery chemistries including:

- Carbon/zinc
- Alkaline
- Lithium
- Lithium Ion rechargeable
- NiMH rechargeable
- NiCad rechargeable

Each cells has advantages and disadvantages. Search this forum for user experiences with various chemistries.

With the Arc-AAA, we recommend alkaline cells. With the Arc-LS, we recommend lithium cells. The Arc-LS can also use NiMH cells to good effect.

Anodize

Every Arc flashlight is coated with Type III Hard Anodize. This HA finish is the hardest of all anodize types. It is substantially more scratch resistant than the softer type II anodize use on cheaper lights.

Safety Precautions

The following are general safety guidelines when operating an Arc Flashlight:

- Do not leave flashlight with children unattended. The flashlight is small and its parts present a choking hazard
- Do not shine the light into the eye. The light is quite intense
- Use only as directed in instructions

The LS will get warm during normal use. Although fairly efficient compared to a typical incandescent flashlight, all electrical conversions result in heat. Whereas incandescent typically radiate most of this heat forward via the reflector in the form of infrared, LEDs transfer most of their heat to the flashlight body, making the beam cooler. A high power LED flashlight with a good LED-to-chassis heat sink may therefore have a hotter chassis than a similar incandescent.

If left on an insulated surface for 10-15 minutes while on, it could even get quite warm (stabilizing at about 150-155F). Care should be taken when picking the light up after such a run. In designing the LS, we made the internal heat sink as conductive as possible to the outside housing in order to keep the LED cool. But these temperatures, although fine for the LED, can be a bit warm for the human hand. Do not leave in cribs with children or anywhere else where a hot flashlight could cause pain or discomfort. The light is designed to be used while being held in a human hand and in such use it should not get hot enough to cause discomfort. This is because the human hand has, j° liquid cooling j^{\pm} which will help dissipate extra heat.

The circuitry of the LS includes a thermal sensor near the LED that will interrupt power to the LED in the event excessive temperature is detected. In testing, we were able to get the unit hot enough to trip the, i° thermal circuit breaker" only when using rechargeable cells for long runs in an insulated environment. When the thermal shutdown occurs, the circuit continues to draw some current but the LED will be off. Turn off the power and let the light cool down before cycling it back on. While waiting for the light to cool down, it is good to open the battery compartment and vent any gasses produced by the hot battery. 123 lithium cells produce a signature organic odor when hot. All batteries produce gases (e.g. Hydrogen) during operation. This is normal. Do not use the flashlight in an explosive environment.

Some of the parts of this flashlight are small enough to present a choking hazard to both children and adults alike. Under certain conditions, the light produced by this flashlight may be bright enough to cause a loss of vision. Do not stare into the beam. Please do not let children use the Arc-LS without adult supervision.

Although the Arc-AAA and Arc-LS both operate with internal voltages below 4 volts (one of the requirements on an intrinsically safe flashlight), this flashlight is not yet rated for use in an explosive/flammable environment.

Arc Company

The Arc Company is based in Tempe, Arizona USA. It was started in May of 2001 by Peter Gransee. Peter got the idea for starting the company by wishing there was a better way to carry a small LED flashlight than the coin cell LED lights on the market at the time.

As the business grew, other people came on board. In October of 2002, Peter married Merri and the two now run the company together.

Currently, Arc employs about a dozen people out of a small facility in Tempe.

Where to buy

You may buy factory direct from our website. We accept credit cards, money orders and paypal. The paypal address is peter@arcflashlight.com

The Yahoo order system we use does not integrate with Paypal. To use Paypal, calculate your order total (tax, shipping, etc) and paypal that amount to the above address. Include in the message which items you are order, shipping method, etc.

Shipping

If purchased factory direct, Arc will ship your light via FedEx. Shipping to US addresses is \$5. Please check our site for shipping costs to other locations. Yes, we ship internationally.

Why do we only use Fedex, have we every heard of the USPS? Yes, we used to use USPS, UPS, Airborne, DHL, Bax, etc. We have been around a while. All these other options ultimately made the product more expensive because they lost quite a few shipments. Claims were drawn out or not paid, etc. Yes, we are quite happy with FedEx. Thank you. If you want a more detailed explanation, feel free to call me.

Website Affiliation

Click here for details.

Warranty

All of our flashlights are covered under our Limited Lifetime repair/replacement warranty against manufacturer; s defects. It also has a 30-day satisfaction guarantee. We encourage you to check your Arc thoroughly within this 30-day period to make sure you absolutely love everything about this light. If you need repair/replacement or have any questions:

Arc Flashlight LLC 1930 E. 3rd Street Suite 18 Tempe, Arizona 85281 USA info@arcflashlight.com www.arcflashlight.com

Local: (480) 752-8554 Toll Free: 1-888-752-8554

Fax: (480) 775-1457

The Arc-AAA/Arc-AA was completely designed by Peter Gransee of Tempe, Arizona. The Arc-LS up to version 2 was completely design by Peter as well. Version 2 added a circuit designed by CPF member, "dat2zip". Version 3 (Arc4) continues Peter's Arc-LS concept with some engineering done by various contractors. All Arcs are made in the USA. We hope you get many years of faithful service from our lights!

Arc Innovation

"First to market single AAA LED flashlight"

"First to market regulated, hand held, single cell LED flashlight"

"First to market hand held, Hard Anodized LED Flashlight"

"First to market Luxeon Star Flashlight"

"First to market High Dome Luxeon Star flashlight"

"First to market temperature controlled LED flashlight"

"First to market Power Regulated LED flashlight"

"First to market Microprocessor controlled Luxeon Star Flashlight"

Anyone is welcome to contest these publically posted claims. Innovate instead of litigate.

Misc Accolades

2002 Lummie for "Favorite LED flashlight" and "Favorite EDC Light"

2003 Lummie "Best Flashlight Manufacturer" and "Best EDC FLashlight"

2 minute appearance on 2003 TechTv's program "Call For Help" Interview on Outdoor AZ radio program February 2004 Rider Magazine (pg.40)

Papers on flashlights

Why you should carry an Arc-AAA on your Keychain Flashlight Classifications
What Makes a Good Every Day Carry (EDC) light?
Finding Scorpions with your Arc-AAA UV
What happened to Arc's 5 watt?



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Arc Reviews:

Toshinori Nagai of Flashlight-Fan.com website:

"The ability to customize the brightness is especially useful, and the single light has the versatility to handle various applications."

English review of Arc4
Japanese review of the Arc4

Doug P. of the FlashlightReviews.com website:

"In my evaluation of the light I am tempted to use the word "perfect" for lack of anything more descriptive."

Full Arc-AAA review

-

Chuck Bryant of Hardware Maniac:

"From the second you open the package and put the battery in, there's no doubt that you're holding a product that has the best design and the highest quality possible. The materials used and the workmanship are first rate all the way through."

Click here for the full Arc-AAA review. Click here for the full Arc-LSH review.

-

Daniel Rutter of **Dan's Data**:

"The Arc-LS is serious. It's a rock-solid bullet-proof well-thought-out device that's probably the most effective tiny-light you can buy if you get it with the 123 battery pack, and that's unquestionably the King Of The Penlights if you get it with the AA-cell pack. It's thrillingly expensive, yes, but if you amortise the price over the multiple decades that this thing could plausibly last, then the price really doesn't seem that bad." Click here for the full Arc-LSH

review.

"I review a lot of gadgets, but not many of them really have a place in my heart; this one does." Click here for the full Arc-AAA review.

- -

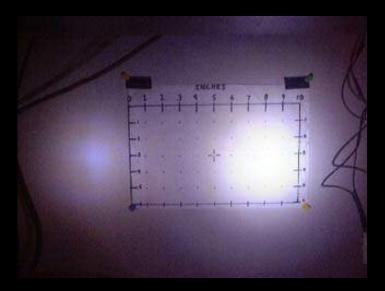
Doug Ritter of <u>Equipped To Survive™</u>:

"The basic Arc-LSH is powered by a single 123-cell lithium and remains by a considerable margin the most compact of the Luxeon powered lights." Click here for the full review.

- -

Craig Johnson of the The LED Museum:

"...this is easily the smallest and brightest single cell white LED flashlight in existence today. A miniature step-up power converter inside the tiny head makes it possible to run a 4 volt white LED with only a single 1.5 volt AAA cell. The easy-grip body is composed entirely of anodized aircraft aluminum, and is, for all intents and purposes, indestructible."



Bright beam on the right, compared to a CMG Infinity (another single 1.5 volt cell light) on the left.

"As the above photo shows, the Arc Flashlight is much brighter than its nearest 1-cell competition, the CMG Infinity. Brightness is comparable to that of a new Photon II that's been in use for a minute or two, and it is exactly the same brightness as the Trek-1, a 3 "AA" single LED flashlight that's many times the Arc's mass." Click here for the full Arc-AAA review.

Click here for the full Arc-LS review.

- -

Brock Neverman of Brock's LED Flashlight Review:

"...It is a bit smaller than the Mag Solitaire and it is as bright as a standard Photon. If you are familiar with the CMG infinity it is very similar, but uses a single AAA cell making it quite a bit smaller. It is however noticeably brighter than the Infinity. The light is the same diameter as a AA battery, but just a bit longer (2.7 x .5 inches). It also appears to be using a constant step up regulator, meaning that as the battery dies the light will not dim, but will remain constant until the battery is almost dead. It is waterproof to 3 feet, I tested this myself and it is. This light has now replaced the Photon on my key chain. I like it! Full Review

. .

Chris Millinship of The Torch Reviews Site:

"...This is a really great light for so many situations- it is bright, robust and waterproof meaning you can take it anywhere. Keep one on your keychain, attached to a belt loop or in your backpack. Although it may not run quite as long as many other single-LED lights, remember that it is designed to be as small and bright as possible, and still use very commonly avaliable and cheap batteries, that are also easy to change. It stays bright for much of its life instead of dropping off constantly, and I feel it is definately worth the extra expense in comparison to its nearest rivals."

Click here for full Arc-AAA review Click here for full Arc-LSH review

- -

Andrew King of WebReference.com

"...if you are looking for techie gift ideas I found the perfect one for techies and non-techies alike. The ARC-AAA LED Key Chain Flashlight. It is small, bright, and durable. It takes normal inexpensive AAA batteries (not lithium) and through its sophisticated step-up inverter is the brightest AAA flashlight you can buy. I've used mine for the last few months, and it has never failed me. Perfect for keychains and stuffing those holiday stockings. Comes in nine festive LED colors.." Click here for full review

-

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Thank you for giving Arc Flashlight "Yahoo's Top Service" distinction! You can read the full list of customer reviews here.

More of what people are saying...

If you have an interesting story about your Arc flashlights or just want to say "thanks", send us a note to testimonials@arcflashlight.com

Some time ago I acquired an ARC LSL second and it had become my only EDC flashlight. It was so bright and compact that other lights simply made no sense. The LSL was at my side when I needed a good light to see by. Well as luck or fate would have it, my wife lost the diamond from her engagement ring about three weeks after I bought the LSL. She was distraught over the loss as we have been happily married for 22 years and that stone was the one that I had given to her when I proposed. Anyway, we searched high and low. We turned the house upside-down and rumaged endlessly through the car's interiors, all to no avail. WE then contacted our insurance company and they agreed to replace the diamond. My poor wife was not at all happy as even though the stone would be replaced it was not her original diamond.

We were in the process of moving to our current Lubbock address and I was going through some cabinets checking for some optical gear with my trusty LSL when a small glint of light reflected from the LSL caught my eye to the left of me on the rug near the base of the cabinet I was inspecting. I thought it was a piece of plastic or glass but when I picked it up I stopped breathing for more than a few seconds--IT WAS MY WIFE'S ENGAGEMENT DIAMOND!!!! I yelled for her to come quickly and when she saw the diamond she burst into tears, she was so very happy to have her ring back with all of it's memories. HERES TO YOU PETER-YOU BUILD ONE HELL OF A GOOD TOOL IN THE LSL.I WILL ALWAYS HAVE AN ARC NEARBY.

Fondly,

DAVID LUBBOCK, TEXAS

Thus far my LSH-P has been used for normal around the house tasks, walking the dog, etc... Nothing too stressful.

This weekend I had to go under the house to check on a few things (some concerns about a pipe and ductwork), change the furnace filter, and generally check on the condition prior to real winter weather setting in. I have a crawl space, and I use the term crawl loosely, it would be better described as a slither space.

Anyway, I went armed with a cmg infinity ultra clipped to the bill of my baseball cap (I don't have a decent headlamp yet, that is definitely on the list) and as a backup, and my LSH-P with my 2AA pack. In the past I would likely have taken a 3D Mag which is relatively cumbersome and of course has the familiar beam issues. Several observations -

1. I didn't treat it any differently than I would have the Mag, which is to say I didn't grind it into the red clay and rocks under my house but I didn't consciously "baby" it either. It emerged covered in red clay and not looking particulary well, but a quick rinse with warm soapy water and it looked

brand new. The finish really does stand up to hard use.

- 2. The size/light ratio when you're snaking along in a tight space 30 feet from the difficult entry point it is really nice to have a light that is so small and easy to maneuver with , but yet gives so much usable light.
- 3. Sidespill/Throw I never appreciated how useful a smooth beam with a hotspot but usable sidespill is in a practical task, since I've never had a light with a decent flood beam. Particularly in such a tight space the ARC lit my entire path without demanding extra movement to see what was ahead. In medium use tasks the ARC beam is nearly perfect. Not to mention the pure white light really helped me see what was going on under the house and check for mold, leaks, decay (my house was built in 1946) and other damage.

About the only thing I would have liked to have had would be a light to use for a limited time to spot an area of pipe at the other end of the house. An LSHF would do the trick but I'm not sure I'm up for another LSH price tag

Anyway, I appreciate my ARC even more having used it like the tool it is designed to be!

Phillip G. Asby Greensboro, North Carolina

I just returned from a three week trip to to Argentina where my ARC LS literally saved my and mine companion's hides, twice. I was with a Canadian delegation examining visitor use problems in Argentina National Parks. During the first incident, we arrived late in the day (4:00) to Nahuel Huapi National Park (located in the Patagonia region) - because Argentina is on the same latitude as Australia, they are going into the winter season and the sun sets at 5:30. Nevertheless, we were still taken on a six kilometer hike through some pretty rugged terrain. The going was pretty slow and the sun went down 4Ks through the hike. Some pretty serious darkness fell over us. The two rangers pulled out what looked like mini-maglites with very weak batteries. After about 15 minutes, their lights died. I pulled out my trusted LS and the night turned into day, leading us out about one hour later. The hike turned out to be uneventfull although we could have been in serious trouble since we walked past many high cliffs. The rangers were pretty impressed with the light and for the fact that I carried it in my pocket (this was some degree of satisfaction as I was ribbed a few times days before for always carring a light).

This experience replayed itself a week later at Iguazu Falls National Parks where we were walking back in the dark next to 100 meter cliffs where a mistake would make us just part of history. Again, my EDC ARC LS saves the day (night).

These incidents made it quite evident that people throughout the world need a LED replacement for their maglight type light, but it has to be very cost-effective and extremely dependable.

This lesson has taught me once again that for a flashlight to be of any use, it has to be carried with you at all times - you never know when it will be needed.

Thanks again Peter for making the perfect EDC light . . . that is until the Arc-LS4 shows up. ARC LS is a life saver in Argentina

Michael Yuan Thunder Bay, Ontario

A few days ago I received one of your LSH-P's (#870). I was so impressed I wanted to share my thought with you. I have been an unabashed flashlight lover since age 3 (it's 46 years later now). It has been a love-hate relationship. Love the light and hate the batteries. Years ago, even the biggest and brightest of lights would soon dim to a shadow of their fresh battery brightness. Then the LED lights came along. They advertised very long run times. Most of those claims were true or course. Well, that is if you did not mind a greatly dimmed light over time. I figure you buy a flashlight for it's

new brightness. (Unless it is like your new LS4 series or the Eternalight) After that, if you want like new performance, it's time to put in new batteries. So, no matter how bright a light was initially, to keep it that way meant a lot of batteries or frequent recharges for rechargeables. I have LED flashlights with 10 to 14 LED's. Though they are fine lights, if you want full brightness, you need to replace 3 C cell batteries every hour or so.

With LED's the other issue has been seeing anything but a very short distance. Mine are quite bright but give up a lot in terms of seeing ahead. To get much useable light also tends to mean a larger flashlight with multi batteries.

Now comes the LSH-P. With your current regulation I get about 2 hours on a single 123 battery. So I get full use of the battery and it's cheaper to feed than my 3 C's if full brightness is needed. The same is true also if I use the 2 AA pack I have. As for actually using the LSH-P for seeing at night, it falls second only to my UK Light Cannon HID light. It's beam is about the same white color and has the similar brighter spot in the middle with lots of surrounding light. So it is my "mini light cannon". And of course mini is the perfect word too. It is simply the most remarkable and useable flashlight I have ever seen or known of. I have lots of lights that I use for many different things. The best and most useful of them all is my LSH-P. I just wanted to say, Well done! Your vision of flashlights is the best of them all.

Best..... Bill McConnell

On or about the 2nd week of December I lost my ARC-LE. After a frenetic search I failed to locate my prized EDC flashlight. I ordered a replacement as I use this light multiple times a day. On March 1 while getting in my truck I saw an object to the side of my driveway that I realized was my lost ARC-LE. I eagerly went to pick it up. As I held it in my hand I was thinking I need to clean it out. Than the thought hit me to try it out first. The head turned easily and the flashlight lit as new. Full brightness and not even a flicker. I still thought that I would need to clean the inside of moisture and/or corrosion so I unscrewed the head and looked inside. There was no moisture and the inside was clean and bright. This was after a couple of snows, many freezes and some severe rainstorms. This is one tough flashlight. My thanks to all the people at ARC Flashlights for making such a fine product.

Dana Adams Alabama

I visited my good friend of 35+ years and fellow semi-retiree recently. He had called me for assistance in installing a new Holley carburetor in a classic Chevrolet he had been working on for several years now. Knowing his prowess with automobiles, I knew that he certainly did not need my help with this task. He just wanted the company. We installed the big Holley and got the '69 Camaro Z28 running and out of the driveway in less that an hour. Unfortunately, it had gotten dark outside already, but he was nonetheless eager to road test the muscle car. While on the freeway, the dome and dashboard lights "went out." It seems that the carburetor was not the only thing that he worked on that afternoon. Fortunately, the headlights still worked. We were a good 20 miles away from his home but he could not see how fast he was traveling. Out of my trouser pocket came the powerful tactical flashlight, however it proved too much when I illuminated the dashboard. My friend said it was too bright and he nearly lost control of the vehicle as he suddenly turned away when I first activated the powerful light. The ARC AAA, however, provided just the right amount of driving light. I pulled it off my keychain, found a roll of electrical tape, and fastened the tiny light at just the right place on the dashboard so that my friend could see the speedometer. After a good laugh and a thrilling ride, we arrived safely at his house. Looks like another purchase of the little wonder is in order.

While dining out with friends the other evening, the candle on our table, at the darker rear area of the restaurant, expired. Although ambient lighting was plentiful and our server brought over another candle after a 20-minute wait, it was a perfect opportunity to use the ARC AAA. with a rubber band I simply attached the mini torch to the paper umbrella from my wife's pina collada, placed it in an empty coffee cup, and activated it. We had a good time talking about our makeshift candle (we didn't use the one our server brought). After 4 hours of dinner, great conversation, and 2.5 bottles of Pouilly Fuisse (there were six of us) the little torch never failed to provide. It still had enough light to illuminate the dark walkway from the restaurant to the parking garage two blocks away. I'm still

using it with the same battery. Thanks Peter Gransee and staff for a great little light.

ΚT

I just wanted to take a moment to note outstanding service. I was impressed by the design of the ARC light and its specifications. The light itself exceeded my expectation. Its the light I have been searching for. A wonderful compact reliable product. However the personal service that backs up this great light exceeded my wildest expectations. You are destined for success. Kudos to Arc Flashlight for "out shining" the competition.

Thomas Nicastri Fair Lawn, NJ

The light itself is a great product and makes for the ultimate key chain light. Peter Gransee epitomizes the word Customer service. He answered all of my emails promptly and honestly. His constant posts and monitoring of feedback on the Candle Power Forums BB is something all manufactures big and small should learn from. Great first product and continued Good Luck to them!

Peter Nemeth Hollywood, FL

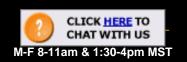
They did everything I specified in my order, and, considering that their first production run was completely sold out, this was very good service.

Kris Cox Louisville, KY

Excellent company to deal with. They keep you informed about your order at all times. Will definitely use again. Many thanks.

Mark Greenway United Kingdom

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Arc Technology What is an LED and why is it ideal for this flashlight?

"LED" stands for "Light Emitting Diode". Enormously improved since their development in the 1960's, current LED's have surpassed the efficiency of incandescent light bulbs. Combined with their rugged, unbreakable construction and long life of over 100,000 hours (over 11 years of continuous use) they make the ideal light source for high tech flashlights.

The Arc utilizes the latest LED technology, a single Nichia 5600mcd, 20-degree unit.

Alkaline versus Lithium batteries

Most LED flashlights this size utilize a Lithium battery to drive the LED. Although these flashlights are typically quite small, the downside is the high cost of battery replacement. Some lithium flashlights require special tools to remove the battery. Also, finding a replacement battery can be a challenge.

The Arc was designed to work with an ordinary AAA battery. Replacement costs are about 1/10 the cost of Lithium's. In addition, battery replacement is very easy, requires no tools and the batteries can be purchased almost anywhere.

Electronic control versus "ordinary" flashlights

To deliver the voltage of a lithium battery using an ordinary AAA battery, the Arc contains a miniature converter that boosts the output of the AAA battery to the level required by the LED. By making the flashlight more intelligent, an ordinary battery can be used which more than offsets the cost of the converter.

The converter has been tested and is quite rugged and requires no attention from the user. It never needs adjustment and is designed to last a lifetime of use.

Join the LED flashlight news group!

Discuss LED flashlights with other "flashaholics" on the web at Candle Power Forums.



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The Arc LS series uses one of the brightest LEDs currently available. The series includes:

• LSL

This was the first Luxeon Star powered flashlight on the market. This model has been replaced with the newer designs.

• LSH

This the second generation of the LS series. Using the new "High Dome" Luxeon which is brighter and has a better tint consistency.

Arc4

This is the latest version of the LS series. Microprocessor controlled with brighter output, longer run times, more rugged construction and multiple brightness levels. Now available!

Join the ongoing Arc-LS discussion at the Candle Power Forums!

Please note that all LED products have some variation in brightness from unit to unit.

Arc LSH

\$99.95

Arc4+ Premium

\$180.00

Arc LSH Premium

Regular price: \$160.00 Sale price: \$149.95

Nylon Carry Pouch for LSL/LSH models

Regular price: \$14.95 Sale price: \$9.95

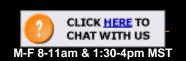
2AA Battery Pack Accessory for LSL/LSH models

Regular price: \$14.95 Sale price: \$9.95 Arc LSHF-P (narrow focus model)

\$149.95

Arc4 Forensics kit

\$195.00



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Affiliate Program

YOU CAN START EARNING MONEY TODAY JUST BY LINKING YOUR WEB SITE TO ARC FLASHLIGHT!

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PROGRAM DETAILS

* Earn a 10% commission on all sales * We provide banners or images * You can check your commissions online anytime

We provide all the logos, banners and text links you will need to get your Arc Flashlight Affiliate Program started. You can link to our home page or any other page you like.

You will earn a 10% commission on every product ordered through your link to Arc Flashlight.com. Depending on the traffic your site generates, you have the opportunity to generate a significant income with no extra work on your part. The more sales you generate, the more you get paid - and there are no maximum payouts!

TO GET STARTED NOW, JUST FOLLOW THESE INSTRUCTIONS:

- 1. Please make sure you have read and agree with our affiliate terms.
- 2. Email sales@arcflashlight.com with your website address, name, and telephone number.
- 3. We will review your request and contact you by the next business day.
- 4. Upon acceptance, you are free to use our graphics library.





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TECHNOLOGY TESTIMONIALS REVIEWS FAQ GIFT CERTIFICATES WHERE TO BUY



Arc-AAA LED Flashlight

- 20,000 MCD, 3 lumen output (independently verified)
- Winner of the 2002 Lummie Award for, "Best LED flashlight" and "Best Every Day Carry Flashlight"
- No bulb to burn out- uses a rugged LED
- AAA cell no expensive lithium batteries required
- Fits on key chain or use included pocket clip (new!)
- Waterproof to 100 feet (tested 100% to 340 feet)
- Type III HA Anodized Aluminum (more scratch resistant than the cheaper type II used on other flashlights)
- ChemKote interior finish for improved corrosion resistance
- 5 hour run time on good alkaline cell (5 hours to 50% brightness)
- Automatic "Sun/Moon mode" (See FAQ)
- Lifetime warranty
- 2.7 inches long by 0.5 inches in diameter
- Weighs 0.75 ounce (with battery)
- Duracell AAA cell included
- Made in USA

The Arc-AAA is available in two grades: Standard and Premium. Both grades use a hand selected white LED but the Premium grade is of a warmer tint of white. Please note that the Arc-AAA is smaller than it may appear. The actual diameter is less than an AA cell and about 1/2 inch longer.

Also note: we use the brightest 5mm white LEDs on the market- special binned Nichias. However, the beams are not perfect. There will be tint variations, geometry variations, etc. Because of the compact reflector on the AAA, there is less beam blending that the AA. The larger Arc-AA will have a smoother beam. Photos of beams do not show all the detail because of limitations with most cameras. 5 hours run time estimate is based on tests with fresh Duracell Alkalines.

The AAA/AA product is currently back ordered for 4 weeks. Even though it is back ordered, we are currently allowing new orders to be added to the list.



Arc-AAA
Regular price: \$28.95

Arc-AAA Premium Edition
Regular price: \$39.95

Arc-AA \$34.95



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Call toll free: 1-888-752-8554

TECHNOLOGY TESTIMONIALS REVIEWS FAQ GIFT CERTIFICATES WHERE TO BUY



Arc-AAA

Arc-AAA. 3 lumen ouput. Regulated. 5 hour run time on good cell. Waterproof to over 100 feet. Lifetime Warranty. Made in the USA.

The AAA/AA product is currently back ordered for 4 weeks

AWS-NAT Regular price: \$28.95 Sale price: \$24.95



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TECHNOLOGY TESTIMONIALS REVIEWS FAQ GIFT CERTIFICATES WHERE TO BUY



Arc-AAA Premium Edition

All white LEDs have a blue tint to them. This is because white LEDs are actually blue LEDs with a green/yellow phosphor cap. Every LED is different in tint balance and brightness. The manufacturer sorts the LEDs by these qualities and charges extra for the better bins. The Premium edition of the Arc-AAA uses the "S" brightness bin which is one of the brightest 5mm types available. The

tint bin is B1, which is the most ideal tint available in the 5mm LED. This tint does have some blue, but the "whiteness" of the beam is at it's maximum. This is readily apparent when placed next to a standard beam. Not everyone needs this level of beam purity though. The standard Arc-AAA is great for most tasks. But for tasks requiring the best in color rendition, we offer the Arc-AAA Premium.

The AAA/AA product is currently back ordered for 5 weeks

AWP-NAT Regular price: \$39.95 Sale price: \$34.95



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TESTIMONIALS TECHNOLOGY

GIFT CERTIFICATES FAQ

WHERE TO BUY

Arc-AA



Arc-AA LED Flashlight

Made by Special Request, the Arc-AA is a larger version of the Arc-AAA. The key differences are the AA battery (instead of the AAA), twice the run time and the new tail end design.

- 20,000 MCD, 3 lumen output
- Nichia SB2 LED
- No bulb to burn out- uses a rugged LED
- AA cell no special batteries required
- Waterproof to 100 feet
- Type III HA Anodized Aluminum (more scratch resistant than the cheaper type II used on other flashlights)
- ChemKote interior finish for improved corrosion resistance
- 10 hour run time on good alkaline cell (10 hours to 50% brightness)
- Automatic "Sun/Moon mode" (See FAQ)
- Lifetime warranty
- 3.0 inches long by 0.7inches in diameter
- Weighs 1.3 ounces (with lithium AA)
- Duracell AA cell included
- Made in USA
- Special order item, stock is limited. Shipped in a simple zip lock bag.

Please note that the Arc-AA is smaller than it may appear. The actual diameter is not much more than an AA cell and

about 1 inch longer.

Also note: we use the brightest 5mm white LEDs on the market-special binned Nichias. However, the beams are not perfect. These are LEDs. There will be tint variations, geometry variations, etc.

Note: The Arc-AA is currently back ordered by 2 weeks. We are continueing to take orders but be aware of the delay in shipping.

BWS-NAT **\$34.95**

Call toll free: 1-888-752-8554

TECHNOLOGY TESTIMONIALS REVIEWS FAQ GIFT CERTIFICATES WHERE TO BUY

Arc LSH



Please note: These units are HA (Hard Anodized Clear "natural"). Some HA tint variation from part to part is normal.

- Standard Model
- 14-17 Lumens (independently tested using integrating sphere)
- No bulb to burn out- uses a rugged Luxeon Star LED from Lumileds
- DC/DC Setup with current-mode regulator, auto sun/moon mode, multi-battery support, reverse polarity protection, thermal circuit breaker
- LED optics protected by new .030" AR coated, scratch resistant LEXAN lens
- 50 feet water proof
- 1x 123 photo lithium pack with tail switch included (battery included), other packs available
- Type III hard anodized/chemkote Aluminum
- Cobalt/Gold positive battery contact
- Simple, reliable housing construction w/knurled grips
- Other power packs available so light can be used with larger but more economical "AA" cells (see order page for details)
- Dimensions with TSP-123 included are 3.2 inches long by .950 inches in diameter
- weight with 123 cell included is 2.2 ounces
- 10 Year warranty/30 day satisfaction guarantee
- Made in the USA

Now on Special. Includes TSP-2AA pack and C-123 Nylon carry pouch for \$99.95. Domestic FedEx shipping is only \$5.

LSH-NAT **\$99.95**

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TECHNOLOGY TESTIMONIALS REVIEWS FAQ GIFT CERTIFICATES WHERE TO BUY

Arc LSH Premium



Please note: These units are HA (Hard Anodized Clear "natural"). Some HA tint variation from part to part is normal.

- Premium Model, hand selected components for the best tint, brightness and appearance.
- 22-25 Lumens (independently tested using integrating sphere)
- No bulb to burn out- uses a rugged Luxeon Star LED from Lumileds
- DC/DC Setup with current-mode regulator, auto sun/moon mode, multi-battery support, reverse polarity protection, thermal circuit breaker
- LED optics protected by new .030" AR coated, scratch resistant LEXAN lens
- 50 feet water proof
- 1x 123 photo lithium pack with tail switch included (battery included), other packs available
- Type III hard anodized/chemkote Aluminum
- Cobalt/Gold positive battery contact
- Simple, reliable housing construction w/knurled grips
- Other power packs available so light can be used with larger but more economical "AA" cells (see order page for details)
- Dimensions with TSP-123 included are 3.2 inches long by .950 inches in diameter
- weight with 123 cell included is 2.2 ounces
- 10 Year warranty/30 day satisfaction guarantee
- Made in the USA

Domestic shipping is \$5.

LSH-NAT-P Regular price: \$160.00 Sale price: \$149.95

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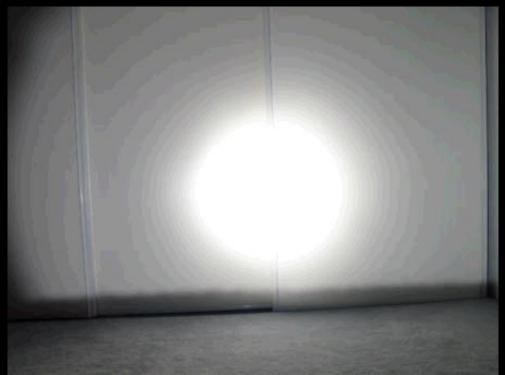
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TECHNOLOGY TESTIMONIALS REVIEWS FAQ GIFT CERTIFICATES WHERE TO BUY

Arc4+ Premium



- Rated ouput: now 33 lumens (tested by LSI integrating sphere)
- 1.25 watt, High Dome Luxeon Star LED by Lumileds
- Proprietary microprocessor based power supply. DC-DC buck/boost topology, Thermal regulation, Power regulation, Calibrated brightness, multi-battery support (incl. Lilon rechargeable), reverse polarity protection
- LED optics protected by .092" LEXAN polycarbonate lens
- water proof (depth pending)
- 1x '123' 3V lithium pack with tail switch included (battery included)
- Type III hard anodized Aluminum
- Cobalt Gold positive/negative battery contacts
- Other power packs available in the future
- Dimensions with TSP-123 included are 3.2 inches long by 1.0 inches in diameter
- Total weight with 123 cell and clip installed is 2.9 ounces
- Life time warranty/30 day satisfaction guarantee
- Made in the USA



Voltage range: 2.0V to 6.75V Power Source: one DL-123 Lithium Manganese Dioxide Light Source: 1.25W white LED, regulated for constant brightness Housing: aircraft aluminum, Type III hard anodize Beam: (15 degree @ 3dB, 90 degree to shadow, 10 lux diagram) Settable Power Range: 24dB in 15 settings with 1.5dB spacing Dimensions: 1 inch diameter by 3.2 inches long, excluding pocket clip

Primary Features: simple single button user interface, rechargeable battery protection, reverse battery protection without diode penalty, graceful power reduction for weak batteries, thermal management, intrinsically safe design, tint management, software upgradeable

Join the ongoing Arc4 discussion at the Candle Power Forums!

•••••••

New Rev2 Design now In Production!



We are now accepting back orders for our Rev2 shipping list. The Rev2 design (pictured above) adds 10% more power (now 33 lumens), knurling to the head, a new PCB design, longer switch travel and the body knurl is moved back from the clip. All these improvements are based on user input. Like the first run, the shipping list for the Rev2 will fill up quickly.

Please note that because stock is limited, lead times for shipping an order are about 5-6 weeks.

CWP-NAT **\$180.00**



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TECHNOLOGY TESTIMONIALS REVIEWS FAQ GIFT CERTIFICATES WHERE TO BUY

Nylon Carry Pouch for LSL/LSH models



Double stitched Nylon, custom made for the Arc-LS with the 123 tail switch pack (TSP-123). Printed lettering, "Arc Flashlight". Closed belt loop. Velcro flap.

Note: These pouches are too short to work with the Arc4 model.

C-123 Regular price: \$14.95 Sale price: \$9.95



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TECHNOLOGY TESTIMONIALS REVIEWS FAQ GIFT CERTIFICATES WHERE TO BUY

2AA Battery Pack Accessory for LSL/LSH models

2 AA Battery power pack for the Arc-LS. Features dual mode tail switch for easy one hand operation. Note: You will need an LS flashlight (see above) to make a complete flashlight. This pack is an accessory that turns your Arc-LS into a 2AA flashlight. Note: because the LS is regulated, the brightness with this pack is the same as with the 123 pack. The difference is in the run time (longer or shorter depending on the type of AA cell used). NiMH rechargeables work very well in this pack. On sale! Limited time offer.



TSP-2AA Regular price: \$14.95 Sale price: \$9.95



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TECHNOLOGY TESTIMONIALS REVIEWS FAQ GIFT CERTIFICATES WHERE TO BUY

Arc LSHF-P (narrow focus model)

Arc-LS flashlight with High Dome Luxeon LED. Premium built with P or Q flux Luxeon only. Includes TSP-123. Independently tested to produce 22-25 Lumens regulated. This Special Edition design appears the same as the top of the line LSH-P on the outside, but inside uses the new "Fraen Low Profile" optic to produce a more tightly focused beam. The difference is clearly visible (see below).



Both beams are 3ft from wall

This is a limited run.

LSHF-NAT-P **\$149.95**



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TECHNOLOGY TESTIMONIALS REVIEWS FAQ GIFT CERTIFICATES WHERE TO BUY

Arc4 Forensics kit





Arc4 Forensics Kit - for the detection of blood and bodily fluids. Requires regents such as <u>Luminol</u> to effectively detect certain fluids such as blood, etc. The kit consists of an Arc4 Forensic Light and a pair of Forensic Orange Goggles. The Arc4 Forensic Light is built on the Arc4 chassis and emits a bright forensic blue light that causes material sensitive to the 355-370nm range to fluoresce. The scene must be viewed through the Forensic Orange Goggles to see the fluorescence. 30 minutes runtime per battery at full power. Includes Duracell 123 battery.



This is a special order item and has a 2-3 week delivery time.

CDB-NAT **\$195.00**



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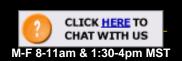
Webcam of Arc's booth at the 2004 SHOT Show

Camera is in the Arc booth at the 2004 SHOT show. Server will send a new image as often as once a minute if motion is detected. This webpage will automatically update to the most recent frame as long as this page is open on your computer. Server will update image no more often than once a minute but may be slower than once a minute if no movement is detected. Page automatically updates on most computers so you don't have to keep hitting "refresh"



Webcam may be offline occasionally (it is using a cell phone to upload to server) but should be working from 9am to 5pm.





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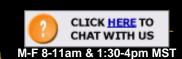
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Arc Flashlight PRIVACY POLICY:

All information gathered by Arc Flashlight LLC through your order is kept strictly confidential and will not be distributed to any company or individual EVER. The information will be used only to make sure that your order gets delivered to you in the timliest manner possible. If you need to change anything about your order- where we'll be shipping it to, phone number, etc. please email us. Any general questions will be answered as fast as we can!

Thanks, Arc Flashlight LLC



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TECHNOLOGY TESTIMONIALS REVIEWS FAQ GIFT CERTIFICATES WHERE TO BUY

\$10 Gift Certificate

gift10 **\$10.00**



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\$20 Gift Certificate

gift20 **\$20.00**





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\$50 Gift Certificate

gift50 **\$50.00**





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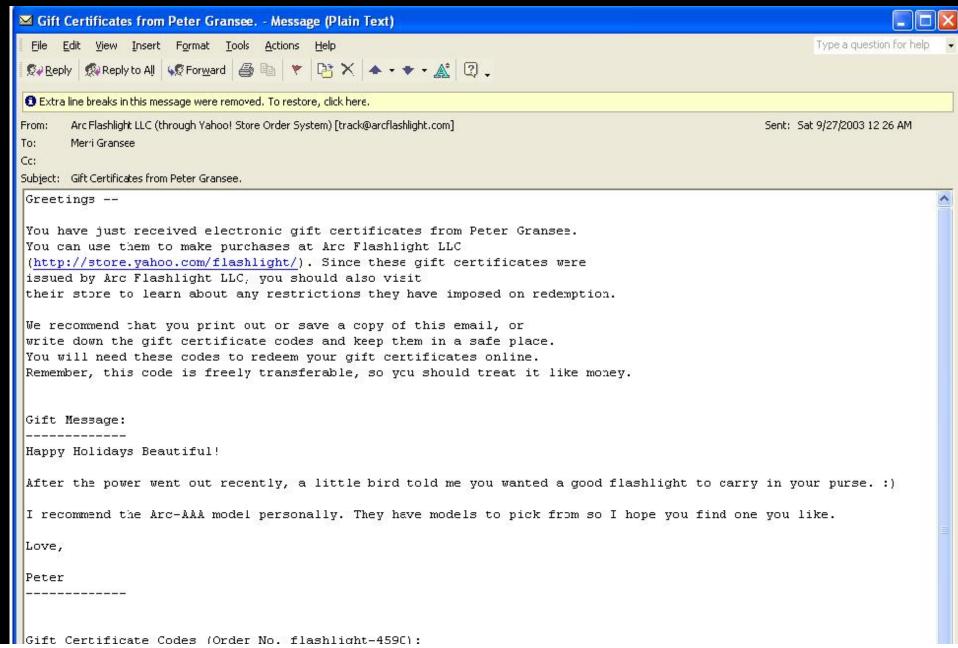
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TECHNOLOGY TESTIMONIALS REVIEWS FAQ GIFT CERTIFICATES WHERE TO BUY

\$100 Gift Certificate

gift100 **\$100.00**

Here's an example of the Email that will be sent to your Gift Certificate Recipient.



The following gift certificate is \$10.00:

The following gift certificate is \$20.00:

To use your gift certificates at Arc Flashlight LLC, visit

http://store.yahoo.com/flashlight/">http://store.yahoo.com/flashlight/,

and add items you want to buy to your shopping cart. At checkout time,
simply enter your gift certificate codes in the appropriate box.

Make sure that you enter the complete code, starting with the "@" sign.

If you've received more than one gift certificate for Arc Flashlight LLC, you can enter all the codes separated by commas. If the amount of the gift certificate covers the cost of your order, you don't need to enter your crecit card information. However, if the gift certificate amount doesn't cover your entire order, you will be required to



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TECHNOLOGY TESTIMONIALS REVIEWS FAQ GIFT CERTIFICATES WHERE TO BUY

Factory seconds, closeouts, special offers, etc. Note: some items offered as is, others have limited warranty.

In some cases, only a few items remain for that product. We reserve the right to cancel your order if the item is no longer in stock or for any other reason.

123 Power Pack Closeout

Regular price: \$14.95 Sale price: \$4.95

Factory Second Arc-LS

Regular price: \$60.00 Sale price: \$50.00

1Watt, High Dome LED for experimentors

\$18.00

5watt Luxeon Star emitter on star PCB for Experiment/Mod

\$45.00

Arc-AA Factory Seconds

\$29.95

Arc4 Factory Seconds

Regular price: \$120.00 Sale price: \$99.95

TSP-123 Pack for Arc-LS series

\$29.95

Official Arc Embroidered Polo Shirts

\$25.00

Arc-RGB

\$24.95

Arc-AA RGB

\$34.95



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TECHNOLOGY TESTIMONIALS REVIEWS FAQ GIFT CERTIFICATES WHERE TO BUY

123 Power Pack Closeout

Single 123 Cell power pack for the Arc-LS. Flat tail end for standing on end. Most compact power pack available for the Arc-LS series. This pack is being discontinued because it may not work with some battery brands. This pack is sold "AS-IS"! We recommend you use the TSP series instead. Some cosmetic blemishes. **Note: We are sold out on the anodized version. We are now shipping un-anodized versions. These are bare aluminimum.**

P-123 Regular price: \$14.95 Sale price: \$4.95



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TECHNOLOGY TESTIMONIALS REVIEWS FAQ GIFT CERTIFICATES WHERE TO BUY

Factory Second Arc-LS

These are factory second Arc-LS flashlights. Offered "grab-bag" style which means you might get a First run, LS1, LS2, hybrid, LSL, LSH, standard/premium, etc. Please, no special requests! Sold "As-IS" but warranted to light up. 14-day satisfaction guarantee period. \$8 shipping domestic. International shipping extra.

SLS-NAT Regular price: \$60.00 Sale price: \$50.00



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TECHNOLOGY TESTIMONIALS REVIEWS FAQ GIFT CERTIFICATES WHERE TO BUY

1Watt, High Dome LED for experimentors



This is one of the newest LEDs being offered by Lumileds. The HD (High Dome, Lambertian) Luxeon Star (#MW1D) is brighter and has better color control than the low dome luxeons. These parts have been hand sorted to be M3 or better. The part includes the emitter bonded to aluminum core PCB with solder contacts. You supply the power supply, optics and housing to make a high tech flashlight!

LXHL-MW1D **\$18.00**



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TECHNOLOGY TESTIMONIALS REVIEWS FAQ GIFT CERTIFICATES WHERE TO BUY

5watt Luxeon Star emitter on star PCB for Experiment/Mod





Hand sorted by Arc and guaranteed to be "U3" or better. Emitter installed on stock heat sink (star board) with pads for connecting your power supply (you supply PS). Includes NX05 optic. 1000 hour rated life. Sold "as-is". Very limited quantities available!

LXHL-LW6C **\$45.00**



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TECHNOLOGY TESTIMONIALS REVIEWS FAQ GIFT CERTIFICATES WHERE TO BUY

Arc-AA Factory Seconds



Factory seconds of the Arc-AA. These units do not meet the Arc standards for anodize, reflector and/or LED quality. 14-day satisfaction gurantee.

BWS-SEC **\$29.95**





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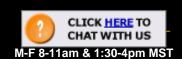
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TECHNOLOGY TESTIMONIALS REVIEWS FAQ GIFT CERTIFICATES WHERE TO BUY

Arc4 Factory Seconds

Arc4 Factory Seconds. These are sold as seconds because they did not make the full brightness, drew too much power at max brightness, flicker at level 1, have switches that don't always work smoothly or have cosmetic blemishes. All do light up, switch levels, etc. Sold "AS-IS" with a 15 day return policy. After evaluating the light for 15 days, it cannot be returned. Due to demand, this item is frequently out of stock.

CW-SEC Regular price: \$120.00 Sale price: \$99.95



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TECHNOLOGY TESTIMONIALS REVIEWS FAQ GIFT CERTIFICATES WHERE TO BUY

TSP-123 Pack for Arc-LS series

TSP-123 **\$29.95**



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TECHNOLOGY TESTIMONIALS REVIEWS FAQ GIFT CERTIFICATES WHERE TO BUY

Official Arc Embroidered Polo Shirts

These are official Arc polo shirts. 100% cotton in grey and the Arc logo is embroidered with black thread. Limited quantities. Please specify your size when ordering! M,L,XL





Note: As of 3/3/04, we are back ordered on the Medium size.

shirt1 **\$25.00**

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TECHNOLOGY TESTIMONIALS REVIEWS FAQ GIFT CERTIFICATES WHERE TO BUY

Arc-RGB



The Arc-RGB flashes in red, green and blue. The flash sequence is automatic (no manual override). Here is a video of the full sequence.

The Arc-RGB is based on the time-tested AAA platform and offers many of the same benefits including:

- Water proof to over 100 feet
- Semi-Regulated output
- Common AAA cell (Duracell included)
- Over 6 hours run time
- Tough HA housing
- Very durable
- 2.7 inches long by 0.5 inches in diameter
- Weighs 0.75 ounce (with battery)
- 10 year warranty
- Made in USA

RGB-NAT **\$24.95**



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TECHNOLOGY TESTIMONIALS REVIEWS FAQ GIFT CERTIFICATES WHERE TO BUY

Arc-AA RGB

The Arc-AA RGB is the rare AA version of the Arc-RGB. Flashes in red, green and blue. The flash sequence is automatic (no manual override). Here is a video of the full sequence.

The Arc-AA RGB is based on the time-tested AA platform and offers many of the same benefits including:

- Water proof to over 100 feet
- Semi-Regulated output
- Common AA cell (Duracell included)
- Over 12 hours run time
- Tough HA housing
- Very durable
- Lifetime warranty
- Made in USA

BRGB-NAT **\$34.95**