

LUNAR

User's Manual & Safety Guide

wicked lasers



User's Manual and Laser Safety Guide

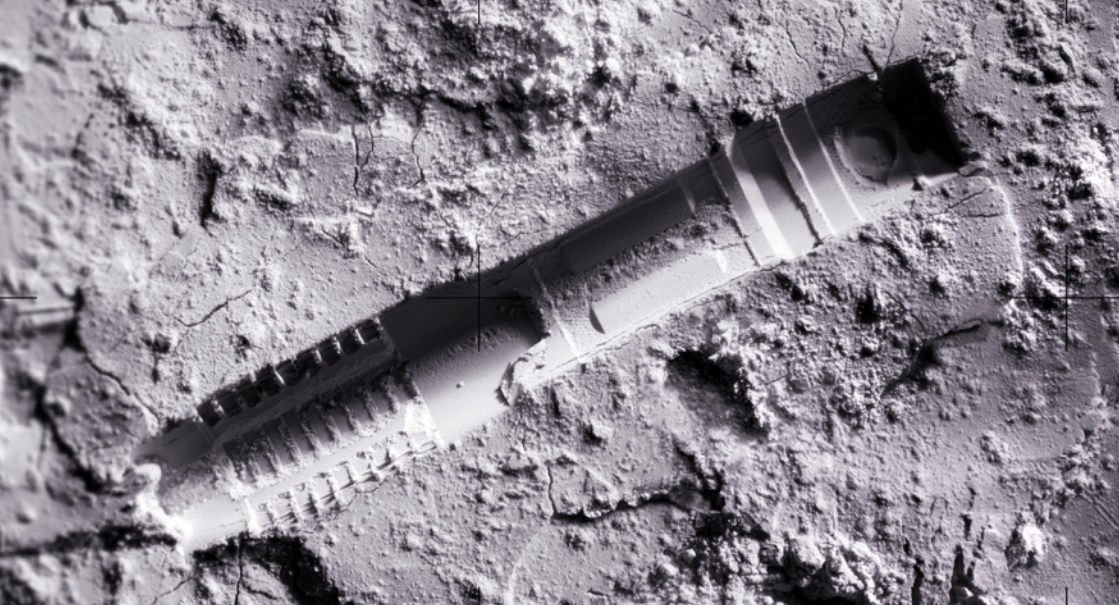
www.wickedlasers.com

FOREWORD

First and foremost, **we are laser enthusiasts**. We desire nothing more than to achieve perfection in our craft. For us, pushing the limits of technology is part of our daily routine. It's only impossible if we don't try.

As we continue to advance in our search for perfection, we've set benchmarks for others to follow and new limits for us to test. This is our mission. We plan to continually push the boundaries of technology and create products that challenge the imagination far into the future.

wicked lasers





We wanted to create the world's most powerful handheld laser - we succeeded and inadvertently set a world record in doing so. We are extremely proud to be included in the **Guinness Book of World Records for 2007**. This will serve as a testament to our commitment to providing the world with the most sophisticated laser products technology can offer.

Designed and developed by some of the world's best engineers, the **Spyder Series** stands at the pinnacle of laser technology. Lithium powered, water resistant and ultimately powerful, the **Spyder Series** is our most advanced line of handheld lasers to date.

We still have much to prove as there is still a world of possibilities in front of us. Our quest to turn science fiction into reality has only just begun.

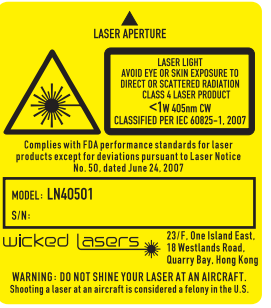
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Technical Specifications

Model Name:	**S3 Lunar Series**
Laser Product Class:	3B
Wavelength:	405nm
Laser Type:	Direct Diode
Laser Power:	400mW
Beam Shape:	4mm
Beam Divergence:	0.7mRad
Size:	257mm x 35.8mm
NOHD*	202 meters
Beam Distance 0.25 Lux	11, 436 meters
Required Eyewear O.D.	2.0+
Power Consumption:	3.7V @ 1A
Battery Lifetime:	30 - 180 minutes
Weight:	378g
Laser Body:	6061-T6 Aircraft-Grade Aluminum
Power supply:	18650 Lithium-Ion Rechargeable Battery
Switch:	Push Button Constant On / Off, Lock-Out Tail Cap, Electronic Mode switch
Modes:	Variable Power Modes / Momentary / Strobe / Continuous / Standby and Secure Lock/Unlock modes
Duty Cycle:	Continous
Expected lifetime:	>5,000 hours
Warranty:	1 Year



*Nominal Occular Hazard Distances are for 0.25 second accidental (unaided eye) exposure.

Laser Diagram



Using Your Laser : How To Power On



At the back of the laser, rotate endcap counter clockwise to open.



Insert one Li-Ion Type 18650 IMR rechargeable battery negative (-) end first.



Push the button located on the tail cap to operate laser.

NOTE: Do not attempt to use a different battery type for this laser, doing so might damage the laser and void the warranty.

Using Your Laser : The SmartSwitch



To operate the laser, it must first be unlocked via the SmartSwitch.

This button is located on the opposite side of the LED indicators.

The **S3 Series** are the world's first and only hand held lasers equipped with **SmartSwitch**™ technology.

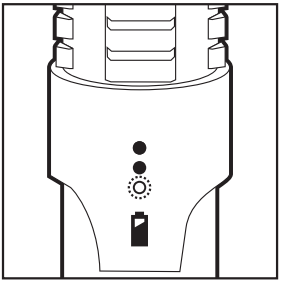
The **SmartSwitch**™ combines both safety and intelligence by requiring the user to follow a protocol of simple clicks and click/holds to operate the device.

Once unlocked, the laser runs in low power/strobe mode (18Hz strobe) which is the default setting.

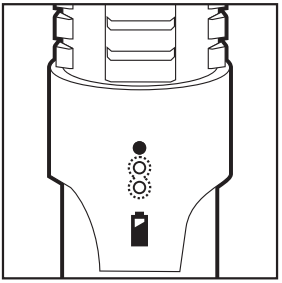
The following page provides a visual guide on how to unlock the laser by simply following a few simple steps.

The flashing LEDs indicate if a step has been correctly followed.

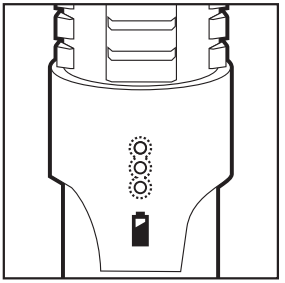
Using Your Laser : The SmartSwitch



1 Push the Power Button on the Tailcap to turn on your laser. The first LED will start flashing to indicate that the laser is ready to be unlocked.



2 Press the **SmartSwitch** button quickly three times. The first and second LEDs will start flashing.



3 Press and hold the **SmartSwitch** button briefly two times. All three LEDs will be lit up and the laser will power-on in **low-power/strobe mode**.

Using Your Laser : The SmartSwitch

To summarize: This is the first code you should remember **three quick clicks + two short holds** (press and hold the button briefly for less than 1 sec.) will unlock the laser.

Once the power is on, the user can toggle between the different active modes all available in low power and high power: Strobe, Constant wave, SOS and Beacon mode with a few simple clicks.

There is also the Tactical hibernation mode which allows you to shut off the laser and quickly re-enable it with the last setting it was on.

The following **9 modes** are enabled by using the **SmartSwitch™ 2.0**:

- Strobe Mode (Hi / Low)
- Constant Wave (Hi / Low)
- SOS (Hi / Low)
- Beacon (Hi / Low)
- Tactical Hibernation Mode

Using Your Laser : The SmartSwitch

SmartSwitch 2.0™ Codes:

After unlocking your laser, you can select among the active modes by using one of these following codes when pressing the button:

- A **short hold** cycles between high power and low power.
- A **quick click** cycles Strobe mode to Constant Wave mode.
- **Clicking quickly 3 times** within 2 seconds goes into SOS mode.
- From SOS mode, **one quick click** will change it into Beacon mode.
- From Beacon mode, **one quick click** will change it to low power Strobe mode.
- **Holding the switch for 3 seconds** will go to Tactical Hibernation mode. The middle LED will be flashing to indicate this.

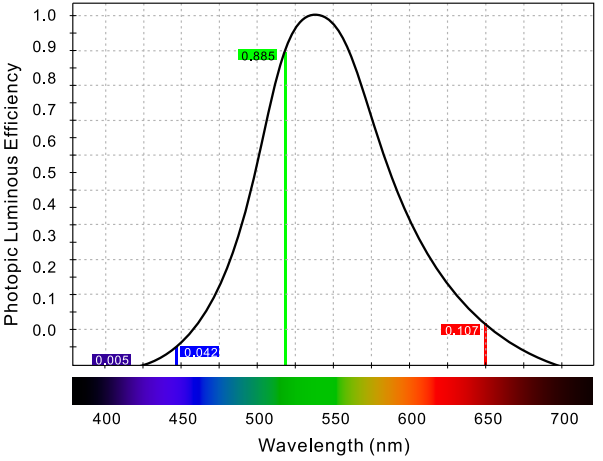
FDA Compliant Endcap Diagram



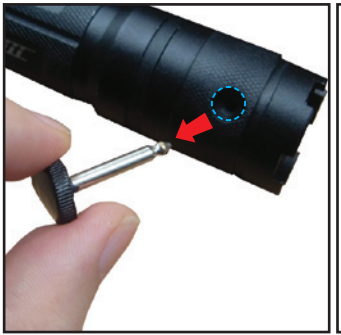
Color Perception Chart

How Intensely the Human Eye Perceives Different Colors

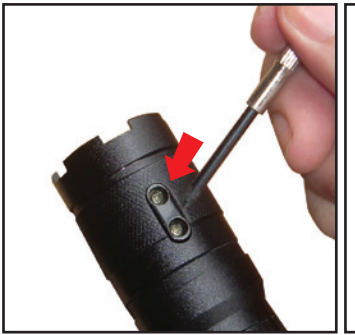
Based on the human eye's perception: equal powers of green 532nm light is 20 times brighter than blue 445nm light, 8 times brighter than red 650nm light, and 190 times brighter than purple 405nm light.



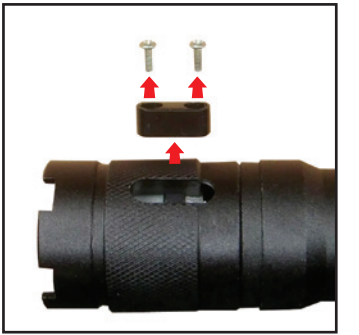
Using Your **FDA Compliant Endcap**



Removing the Safety Interlock from the Endcap will disable the laser.



Another way to disable the laser is by unscrewing the Contact Guard as shown here.



Remove screws to detach Contact Guard and disable the laser.

WARNING: These procedures are ONLY for additional safety for prolonged storage of the laser.

Safety and Maintenance

CAUTION - Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.



1. **No scheduled maintenance necessary to keep the product in compliance.** Simply keep the laser free from dust or other contaminates that could cloud or dirty the laser lens or crystal array and operate within recommended parameters.



2. **Avoid direct eye and skin exposure to the laser beam.** Direct contact with the beam can instantly cause severe and irreparable eye damage. Note that a reflected laser beam can be just as powerful as directly coming from the laser unit itself.



Laser Light – Avoid Exposure to Beam
Class 3B Laser Product



3. We strongly recommend using the LaserShades that come with this laser or wearing similar approved laser safety eyewear.



4. **Do not take apart, modify or dismantle the laser** or operate it under abnormal current load (doing so will void the warranty). **Strictly no service is allowed.**



5. Operate your laser only within the specified temperature range of 15oC (32oF) to 38oC (100oF).



6. Should you have difficulty operating the laser properly and troubleshooting does not work, go to www.wickedlasers.com for support and **RMA** assistance if necessary. **Do not attempt to service, modify or fix the laser yourself.**



7. **Do not shine your laser at an aircraft.** It may cause a distraction to the pilots putting the aircraft's passangers at considerable risk. **Shooting a laser at an aircraft is considered a felony in the U.S.**

*For more safety information & guidance please refer to **ANSI Z136.1 (2007) Safe Use of Lasers** available at the Laser Institute of America website: **www.laserinstitute.org**

Lens Cleaning Procedure and Troubleshooting

What you need :

1. **Microfiber Cloth -** Please make sure the microfiber cloth is specifically designed for cleaning lenses. You can find this at your local camera or glasses store.
2. **Q-Tip or Tooth Pick** - You will need to fold the cloth over one of these in order to be able to reach the lens properly.
3. **Lens Cleaning Solutions** (Optional) - Use the lens cleaning solution only if the lens is not cleaned using the microfiber cloth alone. Please make sure the cleaning solution is designed specifically for lens cleaning.

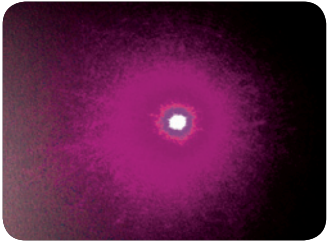
WARNING : DO NOT USE WATER

Procedure :

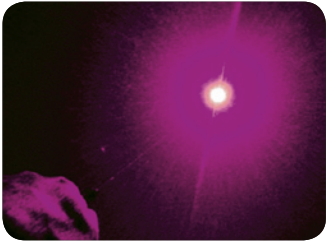
1. Wash your hand with soap and water. Make sure to dry them properly.
2. Remove the batteries from your laser prior to cleaning.
3. Fold the microfiber cloth over a toothpick or the handle part of a Q-tip. Make sure you do not touch the part of the cloth that will be cleaning the lens. You probably will not be able to fold the cloth twice, so you need to be very careful not to press too hard on the lens.
4. Gently move the cloth into the aperture until it comes in contact with the lens. Rub it from side to side but do not press too hard. Gently rotate the cloth in a twisting motion back and forth. Repeat this procedure until the lens of your laser is clean.
5. Re-insert the batteries and turn your laser unit on to see if the lens is clean.
6. **Still dirty?** Apply only 1 drop of **Lens Cleaning Solution** to the part of the cloth that will be cleaning the lens, the follow the same procedure as above. You will want to finish by using a dry part of the cloth to wipe the lens dry, this should take one pass side to side or gentle rotate.

Types of Common **Lens Problems**

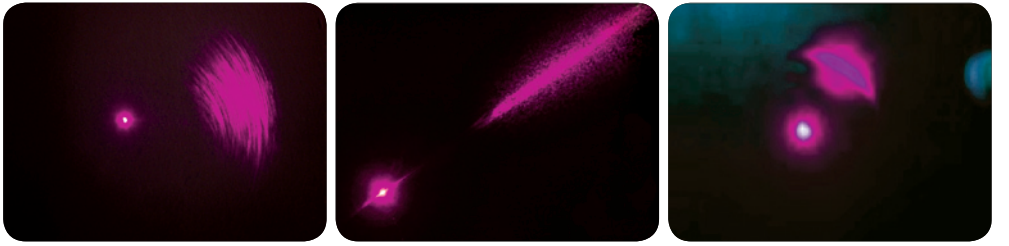
1. **Dirty Lens -** The most common problem with your laser unit is a dirty lens. The easiest way to determine whether you have a dirty lens is to look at the lens under direct light. If you see smudges, finger prints, or small particles on the lens, the beam emitted will look similar to the above pictures. Simply follow the cleaning instructions to restore the spot back to a focused dot.



2. **Scratched Lens -** A scratched lens may occur if you accidentally scratch the lens with a hard or rough surface. The lens of your laser unit is similar to that of a camera, please handle with care. This condition can be repaired by Wicked Lasers, however, will not be covered in your warranty. A repair cost will apply.

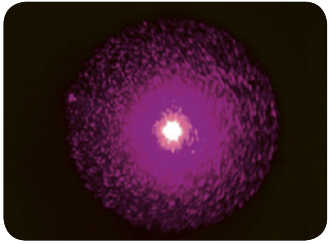


Types of Common **Lens Problems**



3. **Mode Shifts -** A mode shift may occur under extreme temperatures. If your laser unit is too hot or too cold, the beam may appear unstable and look similar to the above pictures. Please note that as your laser "warms up" and returns to room temperature, the beam will return to normal mode, TEM00. The normal operating temperature of all Wicked Laser products is 10ºC ~ 40ºC. Using your laser unit beyond these parameters will damage your laser beyond repair.

Types of Common **Lens Problems**



4. **Moisture -** We do not recommend using any laser products in highly humid or foggy conditions. If your laser unit is used in these conditions and/or submerged in water, the beam may appear similar to the above picture. You will not be able to clean this as water has condensed inside the lens and/or crystal set. This condition can be repaired by Wicked Lasers, however, will not be covered in your warranty. A repair cost will apply.

   *This condition may occur if you are using the laser unit with wet hands. Please dry your hands completely before handling your laser unit.

Class 4 Laser Safety Instructions

DANGER CLASS 4 LASER : All visible lasers with beams over 500 milliwatts (1/2 watt) are classified as Class 4.

- **EXTREME DANGER, MUST BE USED CAREFULLY**
- **DO NOT USE AS A LASER POINTER.**
- **DO NOT USE AS A TOY.**
- **ONLY FOR USE BY PERSONS UNDERSTANDING THE HAZARDS OF THIS LASER.**
- **READ ALL WARNINGS ON THIS PAGE.**



DO NOT SHINE DIRECT BEAM IN EYE-BLINDNESS HAZARD!

The direct beam at close distance can cause instant blindness. The direct beam up to 250m/750ft can cause eye damage. Never aim any laser towards a person's head, or where a person may suddenly appear. Never aim towards a pet or other animal.



DO NOT GET REFLECTED BEAM IN EYE

The beam reflection can cause instant eye damage, especially at close range. There are MANY shiny or smooth objects that can reflect a laser beam. ALWAYS be aware of both the main beam AND its reflection(s). Be especially careful when aiming out of windows due to danger from the "back reflection".

Class 4 Laser Safety Instructions



AVOID EXPOSURE TO BLUE LIGHT

Blue laser light can cause photochemical eye damage. Avoid prolonged exposure to blue light (light from 530nm green to 380 ultraviolet can be hazardous, with the peak danger at 440nm blue). There is a hazard even from prolonged exposure to diffused "room glow" from the beam reflecting off walls or other surfaces. Use safety glasses that block blue light.



WEAR SAFETY GLASSES

If available, wear laser safety glasses or goggles. They MUST be appropriate for your laser's power and wavelength, so the laser beam's power is safely reduced. However, DO NOT RELY ON THE SAFETY GLASSES ALONE. Continue to avoid direct and reflected exposure to the beam.

Class 4 Laser Safety Instructions



DO NOT LOOK OR STARE AT DIFFUSED REFLECTIONS
Looking at the laser "dot" can cause eye damage. Danger is higher when on white surfaces and at close range. DO NOT USE THIS AS A LASER POINTER.



DO NOT SHINE BEAM ON SKIN - BURN HAZARD
The direct or reflected beam can burn exposed skin. Wear protective, light-colored clothing. Do not aim beam at your skin, skin of other persons, or animals.



DO NOT BURN OR DAMAGE MATERIALS
The beam can char, burn or ignite materials. Especially avoid dark, thin, and combustible materials such as fabrics.



DO NOT AIM AT AIRCRAFT OR STARS
The bright light from this laser can flash blind or distract a pilot. NEVER AIM ANY LASER TOWARDS AN AIRPLANE OR HELICOPTER. Always be careful any time the beam goes into the sky. Since far-away aircraft can look like stars, DO NOT USE FOR STAR POINTING. Only use Class 2 or Class 3 lasers for astronomy star pointing purposes.

Class 4 Laser Safety Instructions

OTHER IMPORTANT SAFETY AND USE CAUTIONS:

DO NOT USE AS A LASER POINTER. This Class 4 laser is too bright to be safely used for laser pointing purposes.

NOT FOR CHILDREN OR UNAWARE PERSONS. The user must be mature, and must be aware of the direct and reflected beam hazards to eyes, skin, materials and aircraft.

DO NOT USE ILLEGALLY. Many countries and jurisdictions have laws regarding laser usage. Follow all local laws.

DO NOT AIM AT VEHICLES. Do not distract the driver of a car or truck, or a person operating heavy or dangerous machinery.

DO NOT AIM AT POLICE OR LAW ENFORCEMENT. The beam can be mistaken for a weapon, or for a laser gunsight. People aiming lasers at police and soldiers have been killed.

DO NOT HARASS OR ANNOY OTHERS. Do not aim the laser at athletes, performers, movie screens, or any person. Nor should they be brought to or used at sporting events, concerts, shows, public gatherings or any other event where the beam could be distracting to others.

Limitation of Liability

In no event shall Wicked Lasers or any of its subsidiaries or affiliates be liable for any indirect, special, incidental or consequential injury to persons or damage to property caused by the use of any of our products. By purchasing from Wicked Lasers, you hereby indicate that you understand and agree to the following:

- I am 18 years of age or older.
- I am fully responsible for the safe application and use of this laser and agree to such by completing the sale process.
- I will never look directly into the beam or point the beam at any person's or animal's skin, eyes or other body part.
- I will not point the laser at any aircraft or moving vehicle of any sort.
- I will not use a laser device without wearing approved laser safety goggles designed for such purpose.
- I will never remove the laser's infrared filter.

I will not use the laser in violation of any local, state or federal law, and I understand that it is my responsibility to know and abide by those laws relating to the ownership and use of lasers in my jurisdiction.

Manufacturer's Warranty

All S3 Lunar Series lasers come with a standard 12 Month Manufacturer's Warranty. Our warranty guarantees your laser to be free from defects in manufacture and workmanship.

All defective lasers will be replaced or repaired subject to the full discretion of Wicked Lasers.

Ownership of the warranty is not transferable and will expire exactly 12 months from the date of receiving the purchase.

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1-877-952-7377
Unit 1010, Miramar Tower, 132 Nathan Road, Tsim Sha Tsui Kowloon, Hong Kong
www.wickedlasers.com | support@wickedlasers.com

Manufacturer's Warranty

This warranty does not include defects or damages attributable to misuse, normal surface weathering, or damages caused by accidents or fire or other casualty or force majeure or any other causes or occurrences beyond the manufacturer's control.

To claim your warranty, please send this form or email **support@wickedlasers.com** with the following information:

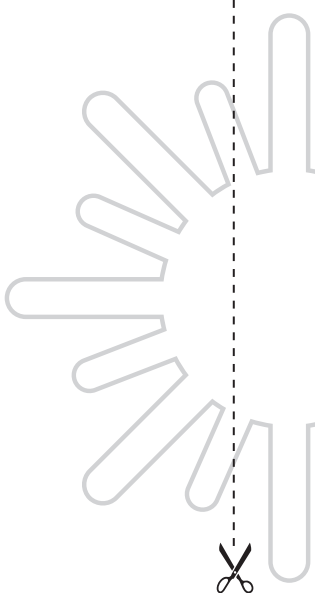
Full Name: _____

Address: _____

_____

Order ID / Laser Model: _____

Reason for Claim: _____





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