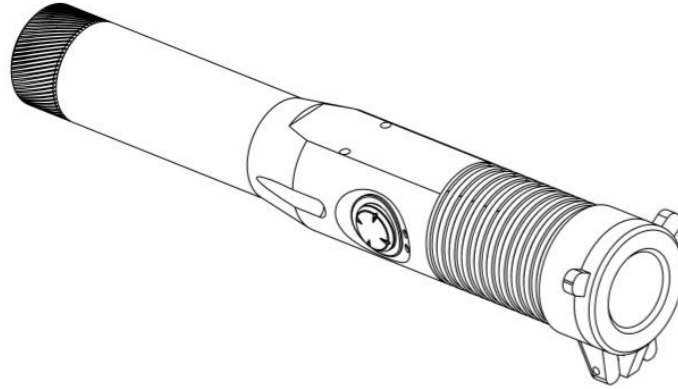


**USER MANUAL
BIRD-X HANDHELD LASER
HH-100 / HH-400
LASER BIRD REPELLENT TOOL**

BIRD-X-LASER HH-100 / HH-400

Laser Bird Repellent Tool



Congratulations on purchasing your Bird-X Handheld Laser Bird Repellent Device.

The **HH-100 & HH-400** are designed to repel and clear birds at distances of 100 to 2000 meters, depending on ambient light conditions. The improved optics system in **HH-400** increases laser power by 4 times compared to **HH-100**. With easy operation and storage in a handheld size, built-in microchip to control two operation modes - momentary and strobe, with clear indicators, can repel and clear birds in minutes. Made of aircraft-grade aluminum alloy with a robust, scratch-free, hard-anodized finish, the handheld laser is waterproof and can operate in all weather and temperature conditions. Using state-of-the-art high-power direct green laser diode technology, not a DPSS (Diode-Pumped Solid-State) laser, they have a broad operating temperature range from -40°F to 149°F (-40°C to 65°C) and a 10,000-hour lifetime. Consumes much less power than a DPSS laser, ensuring longer battery life and lower operating costs.

FEATURES

1. Repel and clear birds from long range in minutes. The improved optical system in **HH-400** increases laser power by 4 times compared to **HH-100**, enabling a much longer working distance.
2. With easy operation and storage in a handheld size, it uses a microchip to control two operation modes - momentary and strobe, with clear indicators.
3. Using a state-of-the-art high-power direct green laser diode, it has a broad operating temperature range from -40°F to +149°F (-40°C to +65°C) with a 10,000-hour lifetime.
4. Made of aircraft-grade aluminum alloy with robust design and scratch-free hard anodized finish, it is a waterproof product, and it can work under all weather and temperature environments.
5. Low power consumption, longer product lifetime, and wider operation temperature range compared to all others, which are made from DPSS green laser.
6. Use at: Airport, Agriculture, Corporate Campuses, Poultry farming, Fishing farming, Golf course, Stadium, Solar Power Plant, Recycling plants, Factory, Landfills, HOAs & Residential zones.



HH-100

Repel and clear birds at the distance of 100 meters to 1000 meters.



HH-400

Repel and clear birds at distances of 400 meters to 2000 meters.

Use it at:



Airport



Agriculture



Poultry farming



Fishing farming



Solar Power Plant



Golf course

SAFETY PRECAUTIONS

DANGER

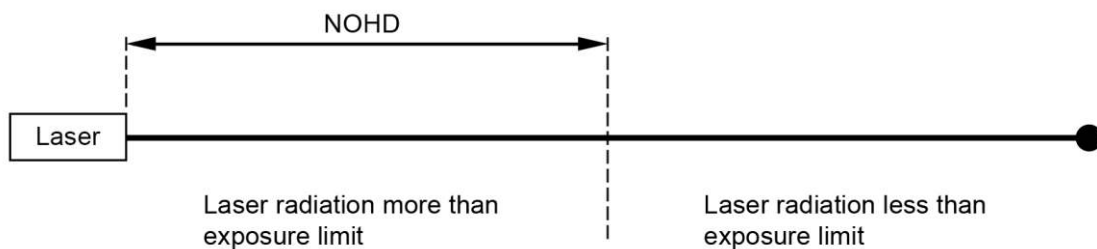
Table 1: Nominal Ocular Hazard Distances (**NOHD**) of **HH-100**

	Green Laser Point
Class	Class IIIb
NOHD(m)	148.41
NOHD(5-cm aided)(m)	1244.37
NOHD(8-cm aided)(m)	2009.00
NOHD(12-cm aided)(m)	3028.50

Table 2: Nominal Ocular Hazard Distances (**NOHD**) of

HH-400

	Green Laser Point
Class	Class IIIb
NOHD(m)	1106.83
NOHD(5-cm aided)(m)	8458.76
NOHD(8-cm aided)(m)	13588.02
NOHD(12-cm aided)(m)	20427.03



Note: NOHD (Nominal Ocular Hazard Distance) is a term from laser safety. For divergent lasers, it refers to the distance at which the measured value is equal to the limit value, and thus indicates the danger zone within which there is a risk of damage to the eyes when looking directly into the laser beam.

Exposure to the laser beam inside the NOHD minimum safe range can cause permanent damage to the human eye.



- **CLASS IIIb LASER PRODUCT.**
- Laser radiation when open, **AVOID DIRECT EYE EXPOSURE.**



LASER SAFETY WARNING

DANGER

- Use of controls or adjustments, or performance of procedures other than those specified herein, may result in hazardous radiation exposure.
- This laser product is classified as Class IIIb for Visible point according to 21 CFR 1040.
- **HH-100 / HH-400 are Class IIIb products and can injure the eyes. Always avoid pointing HH-100 / HH-400 at anyone at any time.**
- **Do not direct the laser beam at anyone operating a boat, vehicle, or aircraft.**
- Avoid all eye contact. Never look directly into the laser lens, even if the laser is off.
- Do not stare into the laser beams and laser aperture.
- Do not look into the laser beam through binoculars or telescopes.
- Do not point the laser beam at reflective surfaces.
- Never aim the laser beam at people's eyes.
- This unit must be used by experienced technical personnel only.
- Do not leave the laser beam unattended.
- Do not target vehicles or aircraft with the laser beam when the unit is used outdoors.
- Do not look directly into laser beam with optical instrumentation unless adequate protective filters are used to protect the eyes.
- Avoid aiming the laser beam at mirror-like surfaces. Remove any unnecessary mirror-like surface from the vicinity of the laser beam path.
- The warranty will no longer exist once the product has been taken apart.

CAUTION

- Front cap and keylock switch are two protection devices to prevent laser to fire accidentally. Please always close front cap and lock the keylock switch after use. Please read user manual carefully before operation.
- When not in use, always keep the power on OFF mode, Including when in storage.
- **Battery : The HH-100 / HH-400 is powered two CR123A Lithium batteries (included).**
- Do not allow water to enter the housing by keeping the battery cap shut.
- Do not store the **HH-100 / HH-400** with battery installed.
- Do not install a defective battery in the **HH-100 / HH-400**.
- Prior to operating, check to see all batteries are free from cracks, bulging, and leakage.
- Do not puncture, disassemble, or short-circuit.

TABLE OF CONTENTS

FEATURES.....	2
SAFETY PRECAUTIONS.....	4
TABLE OF CONTENTS.....	8
CHAPTER 1 : CONTENTS OF A SET.....	9
CHAPTER 2 : SPECIFICATIONS	10
CHAPTER 3 : CONSTRUCTION.....	11
CHAPTER 4 : OPERATING PROCEDURES	12
4.1 Battery Installation.....	12
4.2 LED Status Indicator.....	13
4.3 Normal Operation	14
CHAPTER 5 : BASIC MAINTENANCE.....	15

CHAPTER 1

CONTENTS OF A SET



TABLE1-1

No.	Part Name	QTY	Parts Stock Number(PSN)
1	HH-100	1	257-BR001G
	HH-400		257-BR003G
2	CR123A	2	451-C0103G
3	Key	2	410-BR001G
4	Lens cloth	1	499-5B108G

CHAPTER 2

SPECIFICATIONS

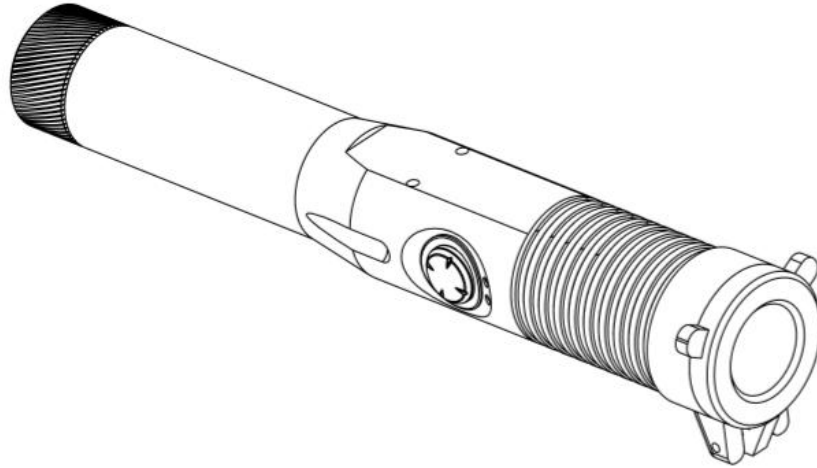


TABLE 2-1 Specifications

	HH-100	HH-400
Weight	240g±15 g	275g±15 g
Dimensions	200(L) x 37(W) x 41(H) mm	220(L) x 37(W) x 41(H) mm
Output Power	100mW (Class IIIb)	400mW (Class IIIb)
Laser Wavelength	520±10 nm(Green Laser Diode)	
Construction	Aluminum 6061 T6 with scratch-free hard anodized finish.	
Range (Day Time)	100 to 1000 meters	400 to 2000 meters
Range (Night Time)	Above 10 KM	
Operation	ON/OFF button	
Operating Temperature	-40°F ~ 149°F (-40°C ~ +65°C)	
Water Proof	IP67	
Battery	2 x CR123A batteries (included)	
Battery Life	3 hrs. (2 x CR123A batteries)	80 minutes (2 x CR123A batteries)

CHAPTER 3

CONSTRUCTION

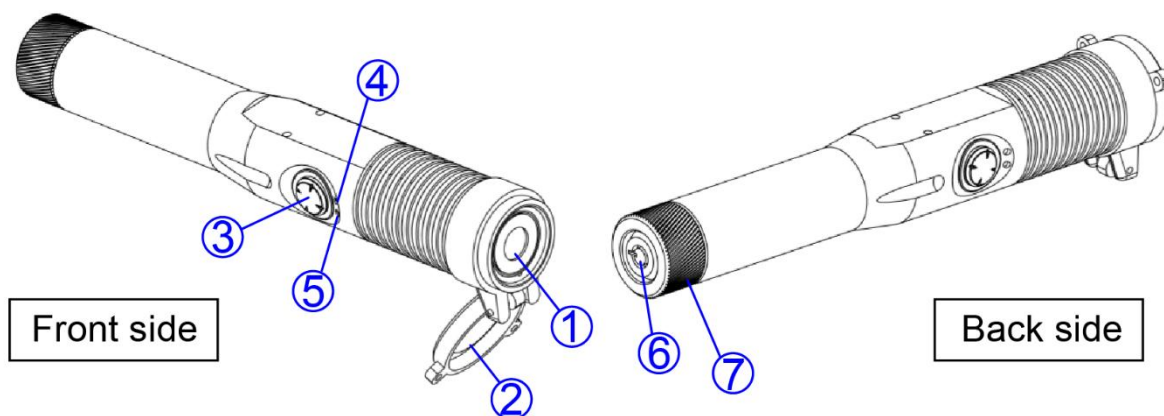


TABLE 3-1

No.	Description
1	Laser Point Aperture
2	Front cap
3	ON/OFF button
4	Ready Indicator
5	Laser on Indicator
6	Keylock switch
7	Battery Cap

CHAPTER 4

OPERATING PROCEDURES

4.1 Battery Installation

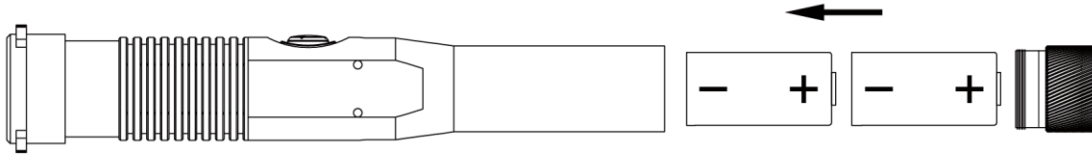


Fig. 4-1

Unscrew battery cap, insert two CR123A batteries, positive pole face outside as Fig. 4-1.

After the battery is installed, screw on the battery cap and make sure the keylock switch is in the "OFF" position.

***Note*:**

HH-100 / HH-400 can be powered by two CR123A lithium batteries or one 18650 rechargeable battery. Please remove batteries from the laser whenever storing.

4.2 LED Status Indicator

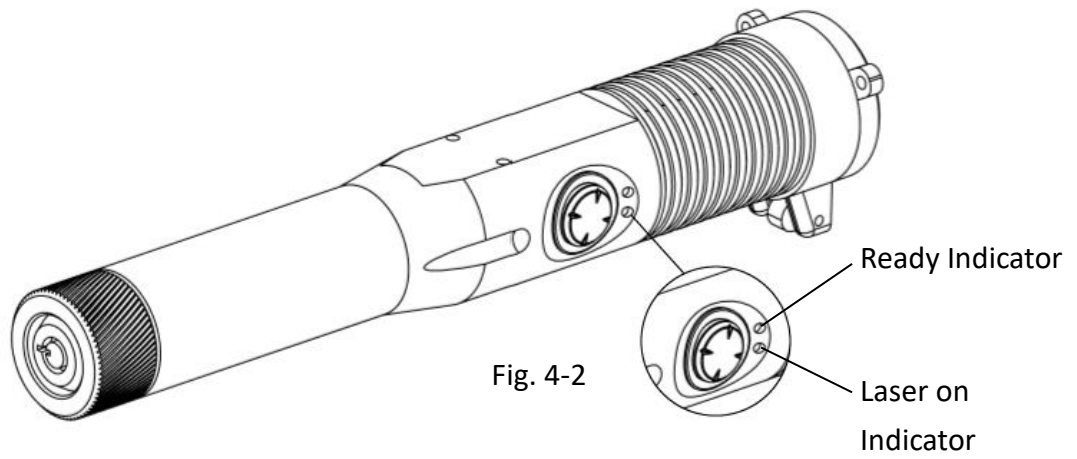


Table 4-2 LED Indicators Color Status:

LED Indicator	LED Color	Status
Ready Indicator	Green	Laser is ready
	Red	Low battery
Laser on Indicator	Red	Laser is emitting
	Red Strobe	On strobe mode

4.3 Normal Operation



1. Unlock keylock switch, the "READY" Indicator will show green light.
2. Open front cap.
3. Press ON/OFF Button Switch, Laser will be turned on. Release it, and the laser will be off.
4. Double-tap on the ON/OFF Button Switch and hold, the Laser will be strobing.
5. Whenever Laser is on, release Button Switch, Laser will be off.

Note

- **Please note that HH-100 / HH-400 is a Class IIIb Laser Product and can injure the eyes. Always avoid pointing HH-100 / HH-400 at anyone at any time.**
- **Do not direct the laser beam at anyone operating a boat, vehicle or aircraft.**

CHAPTER 5

BASIC MAINTENANCE

1. Make sure the **HH-100 / HH-400** is in Power OFF status.
2. Remove the battery and close the battery cap.
3. Clean **HH-100 / HH-400** with a soft cloth.
4. Wipe laser-emitting apertures with a dry lens cleaning tissue. Carefully brush off all loose dirt from the apertures.
5. Wipe dust and dirt from all components with a soft dry cloth.

CAUTION

- Do not allow water to enter the housing by keeping the battery cap shut.
- When not in use, always keep the power in OFF mode, including when in storage.
- Do not store the **HH-100 / HH-400** with the battery installed.

Bird-X is a premier producer of high-quality laser diode modules. We design, develop and market products to meet the laser needs of a broad customer base. To meet the evolving needs of an ever-increasing market.

This manual contains technical data whose export is governed by Bird-X.

Don't hesitate to contact us if you have any questions or concerns. We welcome all inquiries.

The BX-LASER-HH-100 & BX-LASER-HH-400
are produced for: Bird-X. www.bird-x.com

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