



ZORN

**SMART BIRD LASER**



BIRD DETERRENT SYSTEM

Setup manual V1.3

# 1. History of changes

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V1.3	Feb 22 <sup>nd</sup> 2022	Added declaration of conformity
V1.2	Jan 6 <sup>th</sup> 2022	Product rename on first page and labels
V1.1	Nov 19 <sup>th</sup> 2021	Changes in figures numbering, front page name update
V1.0	Nov 11 <sup>th</sup> 2021	First edition. Separation from the Common Operating Instructions V1.5

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### 3. Document





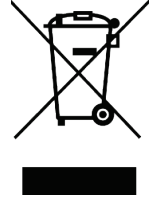
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This document is part of the product and contains information and safety instructions for use of the device that must be followed.

To use the device correctly and safely, read the instructions in advance and save them properly. The documentation is intended for persons who perform the installation, electrical connection and start-up of the device.

#### 3.1. Interpretation of symbols

For your safety, it is important to read and fully understand the table below, which describes the signal words and their meanings! Alerts can contain added safety information in the form of symbols and additional text.

 <b>WARNING</b>	A warning symbol indicates danger. Caution should be exercised when handling the product. Failure to follow the instructions could result in serious injury.
 <b>DANGER</b>	Electric shock hazard symbol.
 <b>ATTENTION</b>	The warning symbol indicates the risk of injury from laser beams.
 <b>INFORMATION</b>	Important information and instructions for use.
	Symbol for waste electronic equipment.

## 4. Safety instructions

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### 4.1. General

- Before working in a hazardous environment, near power lines, or similar circumstances, the person responsible for the device should consult your local authorities or safety experts.
- Before installing the device, make sure that it contains all the necessary parts for operation.
- The person responsible for the device must understand the safety instructions. He or she must ensure that all users understand and follow these instructions.
- Prevent unauthorized personnel from accessing the product.
- If the device is damaged, consult your dealer.



- Due to the risk of electric shock, only an authorized and qualified person should connect the device.
- To reduce the risk of electric shock, never service, install, or remove the device while it is energized.
- Before using the device, make sure that the line voltage corresponds to the voltage specified on the device.
- Use the device only with the supplied external power supply.



- The device must not be used by children under the age of 18 and persons with reduced physical, sensory or mental capacity, lack of experience and knowledge. The device is intended for professional use only.
- Children should not play with the appliance. Children should not perform cleaning and user maintenance without supervision.



- The device must be equipped with means for disconnection from the mains by separating the contacts on all poles, ensuring a complete disconnection in the conditions of category III overvoltage, and these means must be installed in the fixed wiring in accordance with the wiring rules.



#### 4.2. Laser safety instructions

- The device produces visible laser beams that are released from the instrument.
- The product belongs to class 1, which means the laser beam is safe in all conditions of normal use.

CLASS 1 LASER PRODUCT

- Staring directly into the beam with optical aids (e.g. telescopes, binoculars) can be dangerous.
- Staring at a laser beam can damage the eyes.



#### 4.3. Waste electronic equipment

##### **WARNING:**

- The appliance must not be disposed of with household waste. Dispose the used device properly and in accordance with the regulations which apply to your country.
- By irresponsibly disposing of an obsolete device, you may allow unauthorized persons to use the device in violation of regulations, exposing themselves and other people to the risk of serious injury and damage to the environment.



## 5. Safety instructions for use

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### Intended use:

- The device uses a laser beam to scare away birds out of the buildings where they are retaining.
- The laser can only travel within the set selected areas.
- In the set area the device itself detects where the birds are staying and triggers the laser.
- It shuts down automatically.

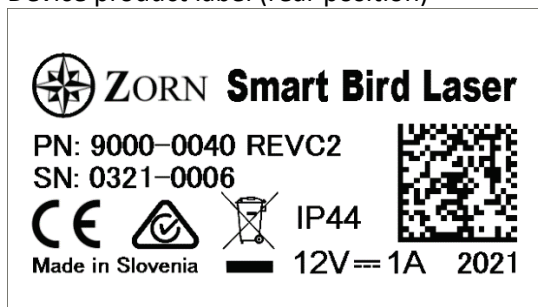
### Improper use:

- Use without instructions.
- Off-site use and restrictions.
- Disabling embedded security systems.
- Removing type labels and hazard warning labels.
- Opening the device, except as permitted during installation or service.
- Changing and redesigning the device.
- Use of the device with recognizable damage or malfunctions.
- Intentionally blinding other people.

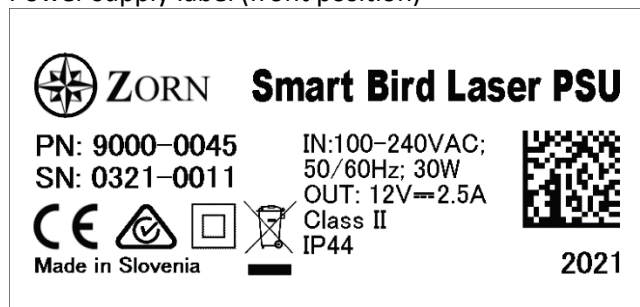
## 6. Markings and labels on the device and power supply

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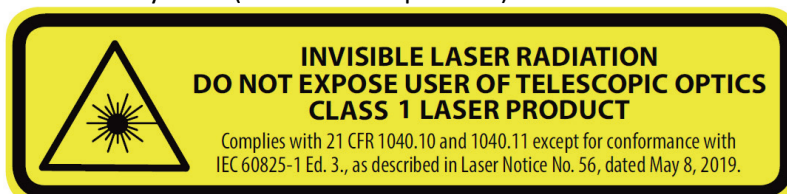
Device product label (rear position)



Power supply label (front position)



Device safety label (bottom front position)



## 7. Device start up and establishing communication

If the device has been properly connected to the power supply, it will start up automatically and establish a wireless access point named »Bird\_\*«. Use a laptop or a tablet to connect to the device access point. The default password to connect is »Admin2021«. Then open a browser (Chrome, Firefox, Edge or Safari) and enter the following address <http://192.168.100.1:8000> in the toolbar. A login window will appear (see Figure 1). Enter the default username »admin« and password »Admin2021«. A web interface will open (see Figure 2) through which you can complete the installation of the device. You can check once again via the live image if the device is facing the desired object properly.



A login form with two input fields: 'Username' and 'Password'. Below the fields is a blue 'Login' button.

Figure 1: Login to the web interface

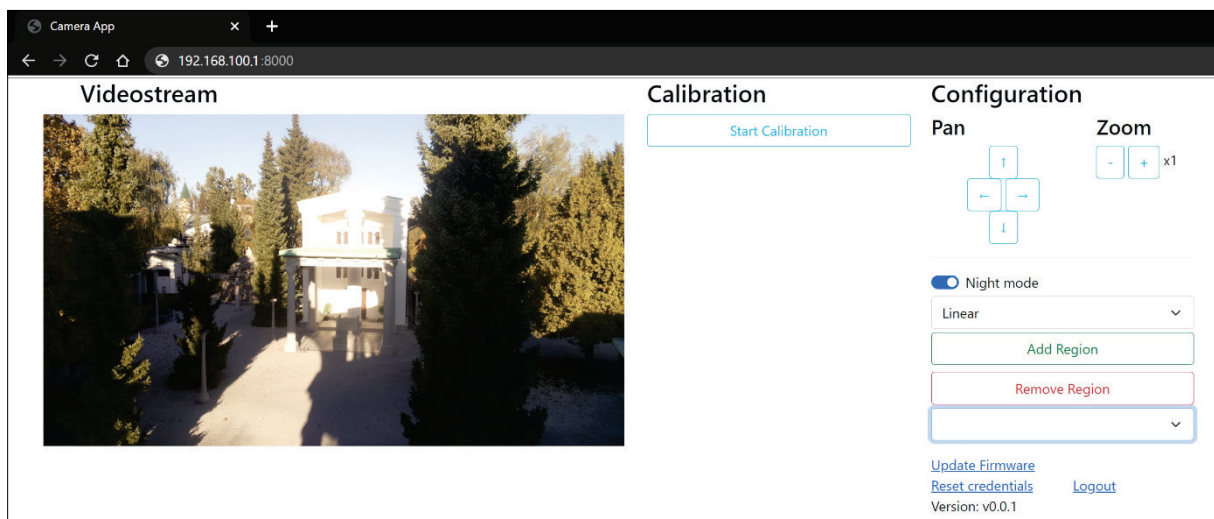


Figure 2: Web interface for configuring the device

## 8. Laser and camera calibration

Laser and camera calibration is required for proper operation of the device. Calibration is best done when it is not very bright outside, as the laser is more noticeable. To start the calibration process, press the »Start Calibration« button. This brings additional elements (arrows) for laser control and buttons for adding / deleting calibration points in the web interface (under the »Stop Calibration« button) (see Figure 3). Move the laser across the observed object during calibration with the arrows in the web interface or with the arrows on the keyboard (left, right, up, down). Place the laser in at least eight different places on the object. For each set laser position, first press the »Add Point« button (see Figure 3), then click on the image with the mouse (you can click repeatedly to correct the position) to add a

marker (calibration point) where the laser is located. If the laser and the added calibration point overlap (see Figure 4), press the »Confirm Point Creation« button to confirm this point (see Figure 5).

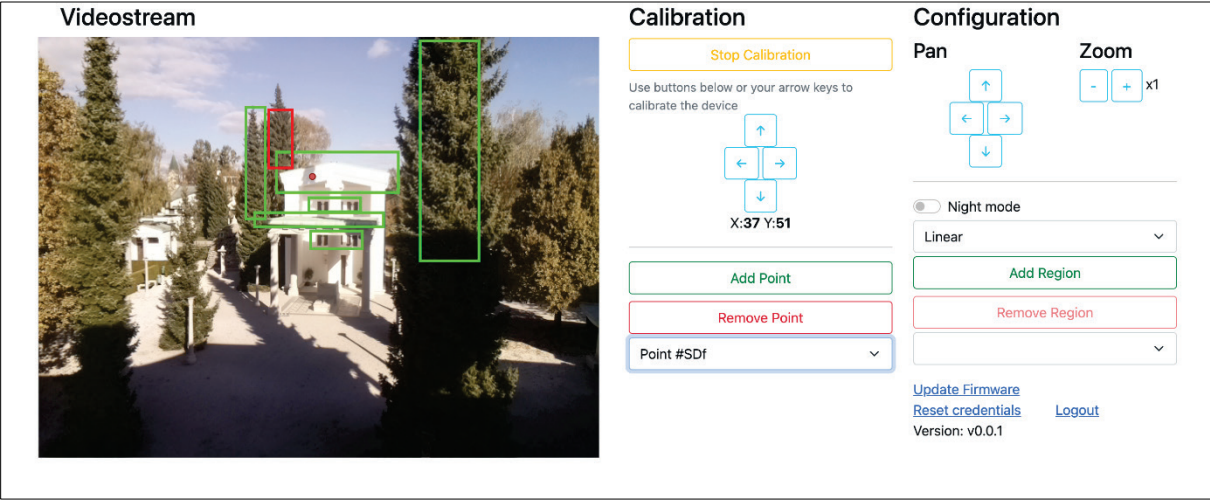


Figure 3: Web interface between laser and camera calibration



Figure 4: Calibration point and laser overlap

To remove an individual calibration point, first select it via the drop-down box (see Figure 3, where »Point #Sdf« is selected). The selected point turns red. Then press the »Remove Point« button.

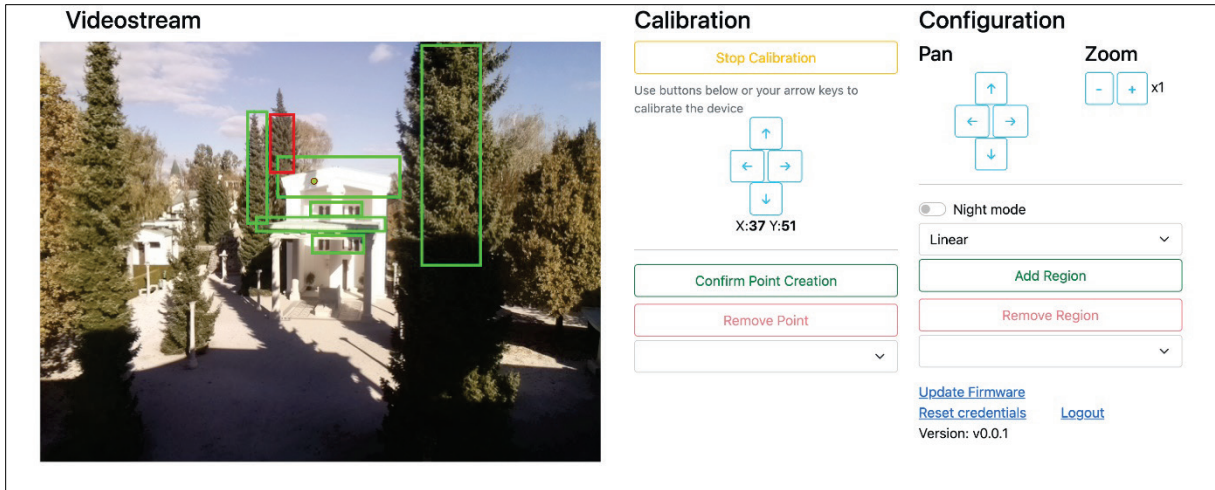


Figure 5: Confirmation of the calibration point with the »Confirm Point Creation« button

Arrange the calibration points throughout the object as shown in Figure 6 (white circles). Then press the »Stop Calibration« button to complete the calibration process.



Figure 6: Display of calibration points

## 9. Selection of laser operating areas

For proper and safe operation of the device, it is necessary to select the areas of operation of the laser. To enter a new rectangular area, first click on the »Add Region« button. Then drag the mouse over the displayed image (see Figure 7) to determine the size of the area within which the laser beam can move. When you have finished dragging, click on the image again to confirm the end point of the area. You can also increase or decrease an individual area by hovering the mouse over the inside of the side of the rectangle, and then drag it in the direction of the change. All areas that may also overlap with each other are shown with green frames. You can remove an individual area by first selecting it from the drop-down list (for example, the »Region #kvQ« area is selected in Figure 7) and then pressing the »Remove Region« button. The currently selected area turns red and the others remain green.



Figure 7: Selection of laser operating areas

When choosing areas, keep in mind that the deflection of the laser is mechanically limited and cannot reach completely the edge parts of the image.

## 10. Device operation modes

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The device supports two modes of operation, namely day and night mode. If night mode is enabled (see subchapter 13.2), the switching is performed automatically according to the current ambient light.

### 10.1. Daily mode of device operation

Daily mode of device operation is based on the perception of the movement of birds within the marked areas. The laser turns on when it detects movement and then turns off again after a certain time if no new movement has been detected. In the daily mode of device operation, it is possible to choose between two modes of laser travel around the detected bird via the drop-down field (see Figure 8): »Linear« and »Circular«.

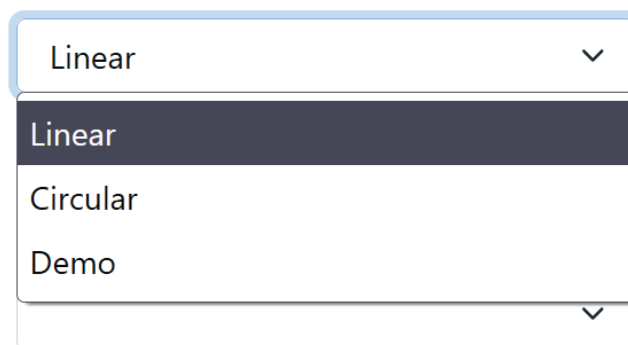


Figure 8: Laser travel mode selection

In the linear mode shown in Figure 9, the laser beam travels from four sides (north, south, east, west) toward the center where the movement was detected.

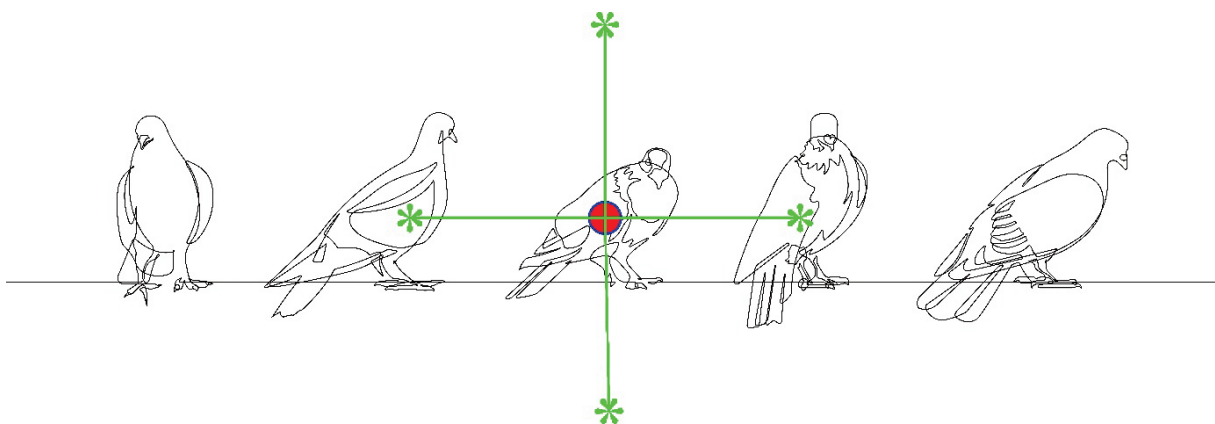


Figure 9: Laser beam traveling from four different sides towards the target (»Linear« mode)

In the circular mode shown in Figure 10, the laser beam travels spirally from the largest circle toward the center where the movement was detected.

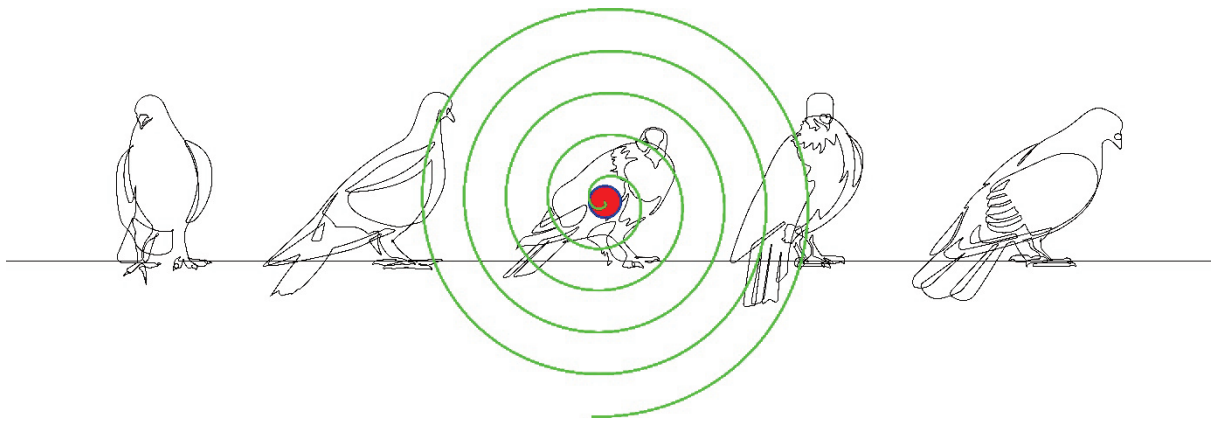


Figure 10: Spiral travel of the laser beam («Circular» mode)

## 10.2. Night mode of device operation

Night mode can be switched on via the «Night mode» switch (see figure 11). In this operating mode, the laser periodically travels through all marked regions.



Figure 11: Turning night mode On/Off

With the «Linear» mode selected, the laser travels along the grid shown in Figure 12. The external grid size is determined by the size of the frames.

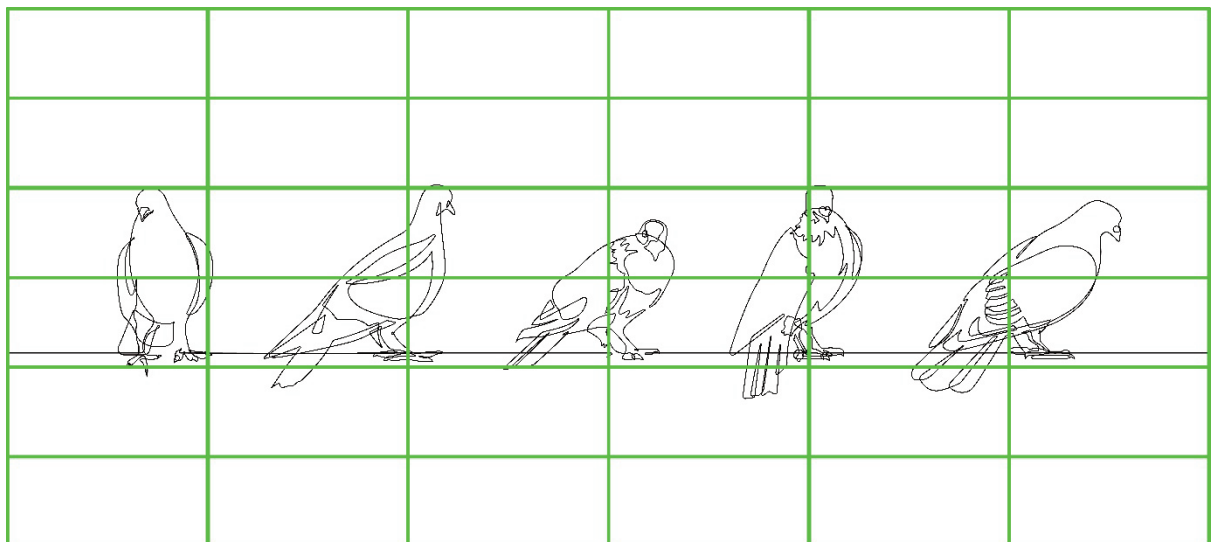


Figure 12: Linear travel of the laser beam at night (the laser covers the entire marked area)

In night mode, the «Circular» laser travel mode can also be selected. In this case, the laser travels in the same way as shown in Figure 10, except that the centers of the spirals are determined by the centers of the marked regions.

## 11. Update the device software

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To update the firmware, download the latest update file from the website and save it to your computer. Then click on »Update Firmware« in the web interface to get the interface shown in Figure 13. Click »Browse« and select the update file. Click »Update« to begin the update. The update takes about one minute, after which you can reconnect to the device access point and open the web interface. In the latter, you can check the software version (bottom right).

[Update Firmware](#)

Firmware

No file selected.

Figure 13: Device software update interface

## 12. Change username and password for access

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Click on »Reset credentials« to update your username (default: admin) and password (default: Admin2021). The interface shown in Figure 14 will appear. Enter the desired username and password. The password must include a minimum of 8 characters (letters and numbers) and must not include hyphens. The username should contain at least 4 characters (without hyphens). Click the »Save« button to confirm the change. The device will reboot. The set password is taken into account both when connecting to the access point and when accessing the web interface. Save the set username and password carefully, as access to the device will no longer be possible without them.

[Reset credentials](#)

↓

[Cancel reset](#)      [Logout](#)

Username

Password

Figure 14: Interface for changing username and password

## 13. Operating areas, transport and storage of the device

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Minimum installation height: 2.5m

Temperature range: -10 - + 50 ° C

Relative humidity: 10 - 90% (no condensation)

Elevation: up to 2000m

Air pressure: The device is suitable for use in an atmosphere suitable for permanent human habitation; not suitable for use in aggressive or explosive atmospheres.

## 14. Technical specifications

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Working area: Horizontal 55 °, Vertical 45 ° (104 x 82m at a distance of 100m)

Maximum working distance: 100m night mode, 50m day mode with active bird detection

Connectivity: Wi-Fi IEEE 802.11b/g/n

Power supply: 100-240VAC 50/60Hz

Connected power: 30W

Power consumption: 10W (Chase), 5W (Observation)

Laser source: 532nm, Class 1, (dot size ~ 1cm at 5m)

IP protection level: IP44

Temperature range: -10 - + 50 ° C

Device size: 258 x 115 x 120mm (L x W x H)

Power supply size: 115 x 65 x 55mm (L x W x H)

Weight: 1.2kg (Device), 0.3Kg (Power Supply)

Mount: Standard bracket for outdoor cameras

Distance of the device from the power supply: 1-6m (6m cable included)

## 15. Declaration of Conformity



### Certificate of Conformity

**Number:** C223-0003/22 **Project file:** C20211501

**Product:** Bird deterrent system

**Type reference:** Bird Laser  
Smart Bird Laser

**Trademark:**  ZORN

**Applicant:** ZORN PLUS d.o.o.  
Stegne 23a, SI-1000 Ljubljana, Slovenia

**Manufacturer:** ZAŠČITE d.o.o.  
Stegne 23a, SI-1000 Ljubljana, Slovenia

**Place of manufacture:** ZAŠČITE d.o.o.  
Stegne 23a, SI-1000 Ljubljana, Slovenia

This certificate is granted subject to the SIQ's rules on product certification. SIQ certifies the conformity of the products with the requirements of the listed standards.

**Ratings:** Supplied from external AC/DC power supply unit:  
Input: 100-240 V~; 50/60 Hz; Class II  
Output: 12 Vdc; 2,5 A; 30 W

**Standard:** EN 60825-1:2014

**Test report:** T223-0559/21 (2022-01-10)

**Remarks:** This certificate shall apply to the products identical to the tested sample and shall remain valid for the period of 3 years until 2025-02-09 or until the validity date of the listed standards, whichever occurs earlier.

**Date:** 2022-02-09

**Authorized signature:** Bojan Pečavar

*Only integral publication of this certificate is allowed. This certificate may only be reproduced in its entirety and without any changes. On request SIQ will give information about the validity of the certificate.*

**SIQ Ljubljana**, Mašera-Spasičeva ulica 10, SI-1000 Ljubljana, Slovenia  
T +386 1 4778 100, F +386 1 4778 444, info@siq.si, www.siq.si

CN500E-01



ZORN PLUS d.o.o., Stegne 23a, 1000 Ljubljana, Slovenija, EU

**Konformitätserklärung – Declaration of Conformity – Déclaration de conformité**

**The undersigned, representing:**

ZORN PLUS d.o.o.  
Stegne 23a, SI-1000 Ljubljana, Slovenija  
email: [info@zornplus.si](mailto:info@zornplus.si) [www.zornplus.si](http://www.zornplus.si)

**Herewith declares, that the product:**

**Smart Bird Laser**

Product number: 9000-0040 and 9000-0045  
SIQ certification project file: C20211501

The electrical equipment described above is in conformity with the relevant European Union (EU) harmonisation legislation:

2014/30/EU – Electromagnetic compatibility (EMC) – from April 20, 2016
2014/35/EU – Low voltage directive (LVD) – from April 20, 2016

References to the relevant harmonised standards used in relation to which conformity is declared:

<b>EMC - Electromagnetic compatibility</b> EN 303 446-1 V1.2.1 ElectroMagnetic Compatibility (EMC) standard for combined and/or integrated radio and non-radio equipment; Part 1: Requirements for equipment intended to be used in residential, commercial and light industry locations SIQ report: T251-0617/21	EN 301 489-1 V2.2.3
	EN 301 489-17 V3.2.4
	EN IEC 61000-6-3:2021
	EN IEC 61000-6-1:2019
	EN IEC 61000-3-2:2019
<b>LVD - Safety for electrical Appliances</b> IEC 60335-1 SIQ report: T211-1079/21	EN 61000-3-3:2013 + A1:2019
	IEC 60335-1:2010 + A1:2013 + A2:2016
	EN 60335-1:2012 + A11:2014 + A13:2017 + A1:2019 + A2:2019 + A14:2019
<b>Ingress and vibration testing</b> IEC 60529 and IEC 60721-3 SIQ report: T211-1021/21	EN 62233:2008
	IEC 60529:1989 + A1:1999 + A2:2013 - IP44; IEC 60721-3-3:2019 - Clause 5.7
<b>Safety of laser products</b> IEC 60825-1 SIQ report: T223-0559/21	IEC 60825-1:2014

Concerning safety aspects, the general and the specific product warnings and safety instructions in the product accompanying documents must also be regarded!

This declaration is based upon the respective technical documentation held by the manufacturer.



Place and date of issue:

17.02.2022

Signed for and on behalf of:

 ZORN PLUS d.o.o.  
1000 LJUBLJANA, Stegne 23/a  
Dr. Oskar Zorn, CEO

