Bioacoustic bird repeller “GRAD A-16 Pro”

User Manual

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This User Manual includes key features, operating instructions, intended use, maintenance, repair, storage and transportation of a bioacoustic bird repeller **"GRAD A-16 Pro"** (hereinafter – the Device).

Please read the present User Manual carefully before using the Device.

Violation of the storage instructions and operating rules will lead to manufacturer warranty termination.

1 Specification and operation

1.1 Application

1.1.1 "GRAD A-16" is a bioacoustic device designed to repel pest birds which cause damage to agricultural lands. Besides, the Device can be used in urban areas where birds (e.g. crows or pigeons) do harm by producing excessive noise and damaging buildings.

During the harvest season many birds (e.g. sparrows, starlings, thrushes, etc.) disturb gardeners, winegrowers and farmers and destroy the best parts of cherries, grapes, corns and crops. At the same time, during the nesting season the same birds do good by destroying insect pests. Therefore, such a method of pest control as extermination is not acceptable.

Currently a bioacoustic method is frequently used. This method utilizes alarm sounds of different birds and sounds of haunting predators to repel pest birds. Experience has proven that this method is much more effective than repelling by whistles, clappers or gunshots.

Operation principle of the Device is based on the natural response of birds to alarm sounds and haunting predator sounds. Playing these sounds is not harmful to birds, but it triggers their instinctive fear and makes them leave the protected area immediately.

1.1.2 Device features:

- **Large coverage area (up to 7,000 m^2 / 1.73 acres)** provides protection to large yards, agricultural fields, industrial areas, granaries etc.
- **Wide variety of recordings with bird sounds (16 pcs)** allows to control birds in any area most effectively or repelling only particular species of birds.
- **Customizable mode settings** (Day/Night, adjustable volume) allow adopting the Device to particular conditions.
- **Capability of autonomous operation** (if powered by a car battery) along with **moisture protection** allows using the Device in the field environment.
- **A specially designed algorithm of forming sounds sequences** eliminates adaptation of birds to repeated signals.
- **Optical mode of repelling** with bright strobe flashes enhances the Device's efficiency.

1.1.3 Operation conditions:

- Ambient temperature……...from -20 to +40 ^{O}C (from -4 to 104 °F);
- Relative humidity at 25^{O}C, ……...up to 98%;
- Atmospheric pressure, ……...from 66,6 to 106,6 kPa

1.2 Technical features

1 2.1 Visual appearance of the device is shown in the Picture 1.

Picture 1 – Visual appearance of the Device

1.2.2 Technical features are shown in Table 1.

Table 1

Feature	Value
Dimensions without a mounting bracket	215x130x95 (8.5x5.1x3.7 in)
Weight without a mounting bracket	1,5 kg (3.3 lb)
Gross weight (including external power source and a mounting bracket)	1,8 kg (4.0 lb)
DC voltage (external power supply)	12±0,5V
Maximum power consumption	0,75 A
Frequency range	from 2 to 16 kHz
Operation modes	Day, night, 24-hour
Random mode	Available
Duration of pauses between the tracks with bird sounds	From 17 sec to 30 min
Sound pressure level at 1 m (3.28 ft) from the Device at full power	100 dB
Maximum/effective protection area,	7000 m^2 (1.73 acres) /2400 m^2 (0.59 acres)

1.2.3 Ingress protection rating – IP54.

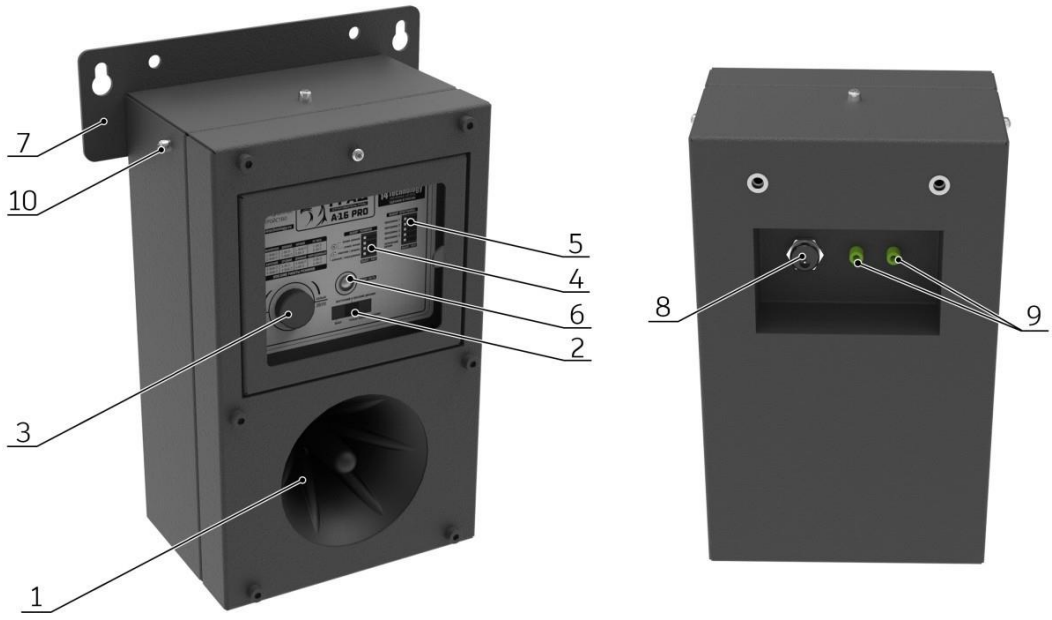
1.3 Device components

1.3.1 Device components and supplied package are shown in Table 2.

Table 2

№	Description	Quantity
1.	**Bioacoustic bird repeller "GRAD A-16 Pro"**	1
2.	External power source 12V, 1A	1
3.	Mounting bracket	1
4.	Screw M4x16	2
5.	Individual package	1
6.	User Manual	1

1.3.2 Location of the Device's main parts is shown in Picture 2



Picture 2 – Location of the Device's main parts

1 – transducer;
2 – power switch;
3 – volume rotary knob;
4 – modes setting switches;
5 – programs setting switches;
6 – photo sensor;
7 – mounting bracket;
8 – power supply socket;
9 – external speaker jacks;
10 – LEDs.

1.4 Structure and functioning

1.4.1 The Device's operation principle is bioacoustic repelling. It imitates alarm sounds produced by different species of birds as well as haunting predator sounds. Besides, the Device features additional mode of repelling by bright strobe flashes.

1.4.2 The Device is operated by microcontroller with a built-in software.

1.4.3 The Device is powered by 12V DC external power supply. The polarity of the power supply socket is shown in the Picture 3.

Picture 3 – The polarity of the power supply socket

2. INTENDED USE

2.1 Operating restrictions

2.1.1 Do not damage the transducer! Damaged transducer will cause malfunction, decline in efficiency or complete failure of the Device.

2.1.2 Do not open or dismantle the Device!

2.1.3 Do not use the Device with an open cover as this may cause water to enter the Device leading to its failure.

2.1.4 Do not use any accessories besides the original (e.g. external speakers, power adapters). Using inappropriate accessories may cause the Device to malfunction or fail.

2.2 Device usage

2.2.1 Setting-up procedures

2.2.1.1 Selecting the repelling program

The Device has several repelling programs. Each program is a non-repeating sequence of sounds separated by pauses and aimed at repelling one or several birds 'species. You will find more information about the programs and setting recommendations in the Annex to this User Manual.

Turn the switch to "ON" position to activate the desired program as shown on the Picture 4. You can do it with a help of a small screw driver, a toothpick or any other long thin object. The same way you can switch optical repelling mode on.

Picture 4 – Selecting programs

2.2.1.2 Mode settings

Move the switches to activate required modes as shown in the Picture 5.

Picture 5 – Mode settings

The first and the second switches activate “day” and “night” modes respectively. If both modes are activated, the Device operates 24-hours.

The third and the fourth switches set duration of pauses between the repelling programs (“short” | “medium” | “long” | “extra-long”). The chart on the front panel illustrates how to set pauses:

- “short” – 17 sec;
- “medium” – 2 min;
- “long” – 10 min;
- “extra-long” – 30 min.

2.2.2 Setting ON/OFF

Connect the external power supply to the power socket of the Device (item 8 in the Picture 2). Switch the Device on by moving the power switch (item 2 in the Picture 2) to the right to “Internal and external speaker” or to “External speaker only” position.

Notice. *An external speaker is not supplied with the Device. It could be purchased separately.*

Picture 6 – Power Switch

Volume can be adjusted via the volume rotary knob (item 3 in the Picture 2).

Move the power switch to the left to “OFF” position in order to switch the Device off.

3 MAINTENANCE

Maintenance requires keeping the Device's housing clean.

4 TROUBLESHOOTING

Troubleshooting information is presented in the Table 3.

Table 3

Problem	Possible reasons	Possible solutions
The Device does not produce repelling sounds	No external power supply is connected	Connect the external power supply
	Volume is set to the minimum	Turn the volume up
	No repelling program is selected	Select at least one repelling program
	Selected modes (day/night) do not correspond to the current time or both modes switches are in "OFF" position.	Check the modes settings
	No external speaker is connected whereas the power switch is in "External speaker only" position.	Move the power switch to "Internal and external speaker" position.
	The Device is defective	Send the Device to the service center.

5 PACKAGING, STORAGE AND TRANSPORTATION

Each device is packed in individual boxes. Devices moving inside the package is not allowed.

Packaged devices can be transported by vehicle or railway in covered trucks or containers, by air in pressurized compartments.

During transportation packages should be protected from precipitation and direct sun rays.

Transportation conditions:

- Surrounding air temperature: from -50 up to 50°C (from -58 up to 122°F);
- Relative humidity: up to 95% at 25°C ;
- Atmospheric pressure: from 84 up to 107 kPa (630 - 800 mmHg);
- Shock acceleration peak value: up to 147 m/s2 (15 g), with a duration of shock acceleration 10-15 ms.

The requirements on warning signs must be strictly obeyed when loading and transporting.

6 MANUFACTURER WARRANTY

6.1 **i4 Technology ™** - Russian vendor and manufacturer of innovative electronics is distinguished by high quality and durability of products. A unique multi-level quality control system is implemented at the plant.

6.2 Effective Device service period — 5 years.

6.3 Manufacturer warranty - 12 months from the date of purchase.

6.4 If the Device fails during the warranty period, the supplier (manufacturer or companies providing maintenance services) should replace or repair it at its own expense.

6.5 Warranty is voided in the following cases:

- After warranty period expiration;
- Violation of the operation, transportation and storage instructions;
- Mechanical damages causing Device failure after the purchase;
- Manufacturer warranty seal is broken.

Repair and maintenance of the devices with an expired warranty period is covered at the customer's expense.

Manufacturer has the right to amend and change device characteristics to improve its consumer properties.

Manufacturer's technical support: www.en.i4technology.ru

Questions concerning the exchange after-sales service should be applied to the distributor that completed a sale.