

Ultrasonic rodent repeller "GRAD A-550 US"

User manual
INTK.433523. 006 RE



CONTENTS

- 1 Device description and operation.
 - 1.1 Device application.
 - 1.2 Technical specifications.
 - 1.3 Device components.
 - 1.4 Structure and functioning.
- 2 Intended use
 - 2.1 Operating restrictions
 - 2.2 Device usage
- 3 Maintenance.
 - 3.2 Current repair. Troubleshooting
- 4 Packaging, storage and transportation.
- 5 Acceptance Certificate.
- 6 Manufacturer warranty.

The User Manual includes key features, operating instructions (intended use, maintenance, repair, storage and transportation) of ultrasonic rodent repeller "GRAD A-550 US" (hereinafter - device).

The main distinctive feature of the rodent repeller "GRAD A-550US" is that the device operates in a silent ultrasonic mode without causing any discomfort to people and pets.

Before using the device, please, carefully read the supplied User Manual.

Following the instructions, restrictions and guidelines contained in User Manual will extend the life of the device and allow you to use it most effectively.

WARNING! Before using, the device should be kept at room temperature for two hours after storing in a cold room or transporting in wintertime.

The manufacturer is not liable for damage caused by improper use or failure to comply with this User Manual.

1 DEVICE DESCRIPTION AND OPERATION

1.1 Device application

1.1.1 It is a portable device designed to deter rodents (mice, rats, moles, shrews) in gardens and indoors - stockrooms, warehouses and utility rooms, etc.

Operating principle is based on intolerance of rodents to ultrasonic emission generated by the device. Ultrasonic waves affect the nervous system of rodents causing them pain and discomfort. Rats and mice lose their ability to take food, water as the result they try to leave the premises.

Note that the device has no harmful effect on people and pets.

The device runs under command of microcontroller with embedded software.

In comparison with other analogues, a distinctive feature of the device is constantly changing parameters of ultrasonic emission. Repetition period of the sound pattern is more than 60 hours that eliminates habituation of rodents to device's emission and allows placing other devices at any distance without the occurrence of the "fading sound" effect.

The device is powered by an external power source and by installed batteries that allows you to use the device in places where there is no possibility to connect to AC power (e.g., at the open place in the garden).

1.1.2 Device operating instructions:

- Surrounding air temperature, °Cfrom – 40 to + 50
- Relative air humidity at 25°C, % up to 98
- Atmospheric pressure from 66,6 kPa up to 106,6 kPa (from 500 mmHg up to 800 mmHg)

1.2 Technical specifications

1.2.1 Visual appearance of the device is shown on Figure. 1.



Figure 1. Visual appearance of the device

1.2.2 Dimensions, mm	109 x 65 x 25
1.2.3 Weight, including batteries, kg.....	0,12
1.2.4 Device shipping weight, including external power source, kg	0,47
1.2.5 DC supply voltage (3 batteries AAA), V	4,5
1.2.6 DC supply voltage for operation from the external source, V.....	9
1.2.7 Maximum current consumption by the device, mA	
batteries.....	10
external power source.....	13
1.2.8 Emission operating frequency, kHz	from 20 up to 40
1.2.9 Emission pattern	circular
1.2.10 Sound pressure level at 1 m distance from the device, dB, not more	110*
1.2.11 Maximum protection area covered by emission, m2	550

**(maximum safe level of emission for human according to SanPin 2.2.4/2.1.8.582- 96)*

1.3 Device components

1.3.1 Device components and supplied package are shown on Table 1

Table 1

№	Description	Quantity	Comments
1	Ultrasonic rodent repeller "GRAD A-550 US" INTK.433523.006 RE	1	
2	External power source	1	
3	Packing box	1	
4	User manual INTK.433523.006 RE	1	

1.3.2 Location of repeller's main parts is shown in Figure 2.



Figure 2 – Components assembly

The housing is constructed of high impact ABS plastic item 1,

In housing are installed:

- ultrasound transducer item 1;
- power button item 2;
- jack for external power source item 3;
- battery cover item 4;
- LED operating indicator item 5;

Structure and functioning

Operating principle is based on intolerance of rodents and insects to sound and ultrasonic waves generated by the device. Constant change of emission parameters eliminates habituation of rodents.

1.4.1 The device runs under command of microcontroller with embedded software.

1.4.2 The device is powered by 3 batteries type AAA and by an external source with an output DC voltage 10-30V.

1.4.3 There is an installation scheme inside the battery compartment at the bottom.

The external power source is plugged in through jack item 3. Polarity of power jack is shown in Figure 3.



Figure 3 – Polarity of jack for external power source.

INTENDED USE

2.1 Operating restrictions

2.1.1 Working device cannot be placed closer than 2.5 m distance from a person.

WARNING! Do not hold the device at a short distance next to a person's ears, as it can lead to headaches and temporary hearing loss.

2.2 Device usage.

2.2.1 Press the power button item 2 (Figure 2) to turn on the device. Immediately after turning on the LED starts to flash (item 6), and the device begins to emit ultrasonic waves.

2.2.2 For resulting expelling effect, it is important to choose the right place for the device. Please consider the following factors:

- Ultrasonic waves reflect from solid materials and are absorbed by soft materials
- Ultrasonic waves do not pass through walls or partitions
- Maximum effective device functioning is obtained by placing it at a distance of 60-70 cm from the ground (floor).

2.2.3 The result of device usage in closed space - a complete disappearance of pests is observed after 14 of continuous operating.

2.2.4 When using the device to expel rodents in gardens, it is recommended to seal it into a plastic bag and place directly into the rodent hole or heel in at 10 cm depth. In order to expel moles place the device sealed into plastic bag into a hole that was dug by a mole.

3 MAINTENANCE.

3.1 Maintenance requires only replacing of batteries as well as cleaning the surface of the device.

3.2 Current repair. Troubleshooting

Typical problems and possible solutions are specified in Table 2.

Таблица 2

Problem	Possible reasons	Possible solution
When you turn on the device the LED does not lit.	Batteries are dead	Replace batteries
	Batteries are not properly installed	Install batteries in accordance with polarity
	Device is defective	Take the device to service center

PACKAGING, STORAGE AND TRANSPORTATION

Each device is packed in individual package according to the supply package as indicated in Table 1. Device moving in the package is not allowed.

Packed devices are placed into shipping containers - a corrugated fiberboard box (State Standard 22637).

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

During transportation packed packages should be protected from precipitation and direct sunrays.

Transportation conditions:

- Surrounding air temperature: from -50 up to 50 °C
- Relative humidity up to 95 % at 25 °C
- Atmospheric pressure from 84 up to 107 kPa (630 - 800 mmHg)
- Shock acceleration peak value is 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 transportation.

ACCEPTANCE CERTIFICATE

Innovative ultrasonic rodent repeller "GRAD A-550 US" INTK.433523.006

Serial number _____

Manufacture date _____

Manufactured and accepted in accordance with the applicable technical documentation and validated.

Quality Department stamp _____

6 MANUFACTURER WARRANTY

6.1 The manufacturer guarantees that the device is manufactured in accordance to INTK. 433523.006 provided the operation, storage and transportation conditions are observed. Conditions are specified in the operational documentation.

6.2 Effective device duration period — not less than 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 Customer loses the right to obtain warranty service in the following cases:

- After warranty term expiration
- Violation of the operation, transportation and storage instructions
- Mechanical damages causing device failure after the purchase
- Manufacturer sealing is broken

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



Manufacturer reserves the right to amend or change the characteristics of the device, improving its consumer properties.

Manufacturer's technical support:

www.i4technology.ru

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Questions concerning the exchange after-sales service should be applied to the distributor that completed a sale. Distributor contacts are specified in its warranty card.