

Portable White Noise Generator and Test Tone Generator

PNG-2

User manual

Read this manual before use

I. Description

PNG-2 is a small, compact and power very effective white noise generator optimized to neutralize function of audio listening devices and concealed audio recorders.

Other very useful function is a generator of special variable test tone which is optimized for activation of voice controlled listening devices.

The PNG-2 is powered by a built-in battery or accumulator. Microprocessor controlled power amplifier ensures the highest possible power consumption efficiency in the whole output power range. For the standard output power the built-in battery can ensure up to 20 hours of continues use. If required external loudspeakers or piezoelements can be connected. External power supply can be connected for permanent application and/or for charging of the built-in accumulator.

The noise generating circuit is based on the certified noise circuit using a thermal principle of a random noise generation. This design ensures the highest possible resistance against digital filtering methods of reconstruction of the recorded sound.

The test tone is a periodic set of audio frequencies optimized to activate voice controlled listening devices.

The PNG-2 in the TEST TONE mode is recommended accessory for RF detectors to ensure the most effective RF countermeasures. The TEST TONE activates voice controlled listening devices which are then easily detectable by wide band detectors RFD-22, RFD-5 or RVD. The detection and bug localization is based on the signal level measurement and on listening to an unmistakable test tone in the RF detector earphone.

II. Power ON, battery check, charging and control elements

After switching ON (POWER switch to ON), start tone sounds, green LED lights up and the device comes to the set mode (TEST TONE or NOISE). Flashing of the green LED is indicating low battery (below 7V). The discharged battery should be changed or the accumulator charged. The battery is under the lid on the rear panel. To release the lid push it and move to the side. For external power and/or charging stabilized or un-stabilized 12V DC power supply can be used. The external power supply should be at least 200mA with 2,1/5,5mm plug and + pole on the central pin. If the external power is connected the yellow LED CHARGE lights. Full charging of totally discharged accumulator takes 14 hours. The external power can be connected permanently, the device contains battery overcharging protection circuit.

TEST TONE / NOISE switch is selecting required function, knob 0 – 8 is adjusting acoustic power. Setting to 0 is ensuring the basic function with minimal output power (not no noise or no tone). External loudspeakers or external piezoelements can be connected to 3,5mm “stereo” plug. External plug is disconnecting internal loudspeaker. External loudspeakers must be serial connected or in serial – parallel combination, the load impedance must not drop below 25 ohm. Ground is on the plug body, left and right channels are parallel connected.

III. Portable Noise Generator

Correctly used PNG-2 is preventing audio records of conversation or illegal records are significantly damaged. Such damaged records can hardly be used like a compromising material. The damage of audio record is directly proportional to acoustic intensity of the white noise which is produced by the PNG-2 loudspeaker. It is always valid that the adjusted noise level should be as strong as possible reaching the highest acceptable level. Example of PNG-2 application during a meeting is on Fig.1. Required setting of the noise level depends on the distance between PNG-2 and the visitor.



Fig.1 Example of PNG-2 application during a meeting
PNG-2 should be placed between the persons, if possible
closer to the visitor

Required settings of the power control knob are in Table 1. The distance means the distance between PNG-2 and the visitor. The same settings are valid for distance between PNG-2 and microphone of any other type of eavesdropping.

Distance PNG-2 to microphone	Power setting
0,5 meters	1,5
1 meter	3
2 meters	4
4 meters	7

Table 1. Minimal setting of the power control knob according to distance between PNG-2 and microphone

IV. Test Tone Generator

Place the PNG-2 into the middle of the room in which the RF sweeping should be done. Switch on the TEST TONE and set the level corresponding to conversation loudness in the tested area. It is usually 30 to 50% of the value from Table 1. Carefully check the area by the RF detector (RFD-22, RFD-5 or RVD). If an analog listening device is activated the test tone will be heard in the detector earphone. Digital or GSM based listening devices are producing increase of RF field close to the listening device and noise or different pulses in the earphone. The exact localization of a digital RF eavesdropping can be done just by detection of the strongest signal. To localize the sharp maximum of the signal it is best to use detector RFD-5 switched to exponential detection mode (setting -30 or -40dB). The principle of activation and localization of a voice controlled RF eavesdropping is on the Fig. 2.

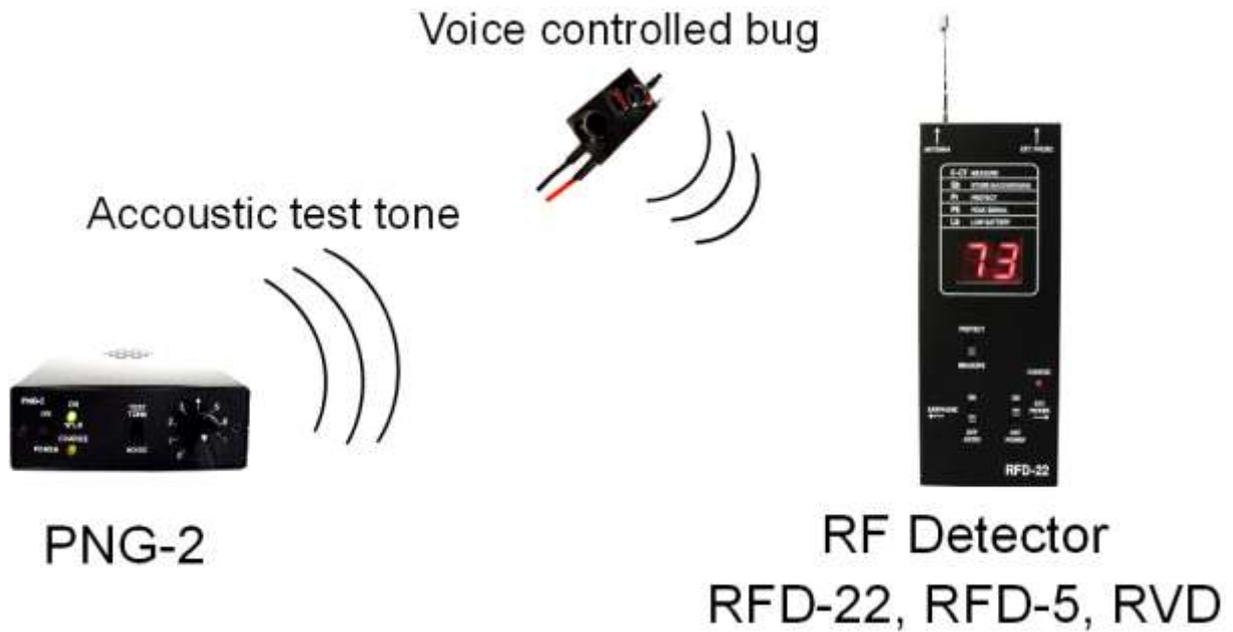


Fig. 2 Principle of activation and localization of voice controlled RF eavesdropping

V. Battery life in continues operation

The battery life in continues usage depends on battery capacity and on adjusted noise level. The continues operation time for standard 200mAh NiMH accumulator is in Table 2. Using a high quality alkaline battery the active operation time is much longer.

If the non-rechargeable alkaline battery is used never connect external power supply! The alkaline battery can make short circuit, leak or explode if charged!

Volume setting	Continues operation time
0	39 hours
1	31 hours
3	14 hours
6	7 hours
8	5,8 hours

Table 2. Continues operation time

Technical specification

- Noise generation principle: thermal
- Output power: 4 to 500mW / 25ohm load
- Power regulation: fluent 21dB
- Power efficiency: maximum $P=500\text{mW}$ 95%, standard $P=100\text{mW}$ 88%
- Internal loudspeaker, external output 3,5mm jack
- Output noise voltage: max. 10V p-p
- Activation test tone: 6x harmonic frequency, 1. harmonic 300 – 2700Hz
- Power: 9V 6F22 battery or NiMH accumulator
- External power: 10 to 20V DC, 2,1/5,5mm jack, central + pole
- Current consumption: 5 to 36mA according to output power
- Low battery indication: below 7V
- Battery life (100% charged): medium power 20 hours
- Battery charge time: 14 hours, over charge limiter
- Size: 123 x 88 x 29mm
- Weight: 256g

