ARCAM

Spy Camera Detector

USER'S MANUAL

Design purpose

ARCAM is designed for remote detection and localization of powered hidden video cameras that are installed outside, indoors, concealed as objects or body-worn. ARCAM is able to detect both analogue and digital cameras regardless of concealment and video transmission methods. ARCAM detects both common wired and wireless cameras, as well as cameras that are storing data on an internal memory bank, which gives ARCAM an obvious advantage over other instruments for camera detection, such as Optical Detectors or NLJDs. ARCAM does not require the operator to thoroughly and slowly search the entire premises or a person, it takes seconds for ARCAM to tell if there are any cameras which could then be easily localized.

Operating principle

ARCAM's operating principle is based on detection and analysis of specific parts of electromagnetic spectrum in order to find stray emission (spurious signals), that is unique for video camera circuits. Upon detection, such signals are then evaluated and correlated with the spectral "images" database that is stored in ARCAM's memory.

Note! Stray emission from some digital circuits commonly used in portable media players, laptops, automobile on-board media systems, et-cetera, can match camera "images". To remedy such false positives ARCAM has a function of "white listing" localized signals that were identified by the user as non-threats.

Package contents

1. ARCAM detector (SEL 102)
2. Antenna (A)
3. Power supply (PS)
4. USB - miniUSB cable
5. Stylus (for touch screen calibration)
6. User's Manual (UM)
7. Hard case

Additionally, test signal emitters and training materials may be included.

Conditions of use

ARCAM is a portable system that includes a high-sensitivity spectrum analyzer and a microcomputer, which makes it necessary to avoid physical impact or operating at extremely low temperatures.

In order to ensure proper function of the device the user should follow instructions and guidelines presented herein.

Technical specifications

Detection range depends on EM characteristics of deployment environment, EM characteristics of the signal source, EM shielding degree, et-cetera and ranges between 1,5 and 25 meters from the device.

Receiver sensitivity	-148 dBm
Dynamic range	80 dB
Detection time (average)	3 s
Analysis time (average)	10 s
Continuous operating time	not less than 4 hrs
Battery full recharge time	not more than 3,5 hrs
Antenna type	whip, broadband
Antenna pattern type	circular
Touch screen type	colour, 74 mm
Battery	Li-Pol, 4100 mAh
Physical dimensions	85 x 140 x 30 mm
Weight (with antenna)	not more than 300 g
Operating temperatures	from - 10°C to + 40 °C

**ARCAM overview**
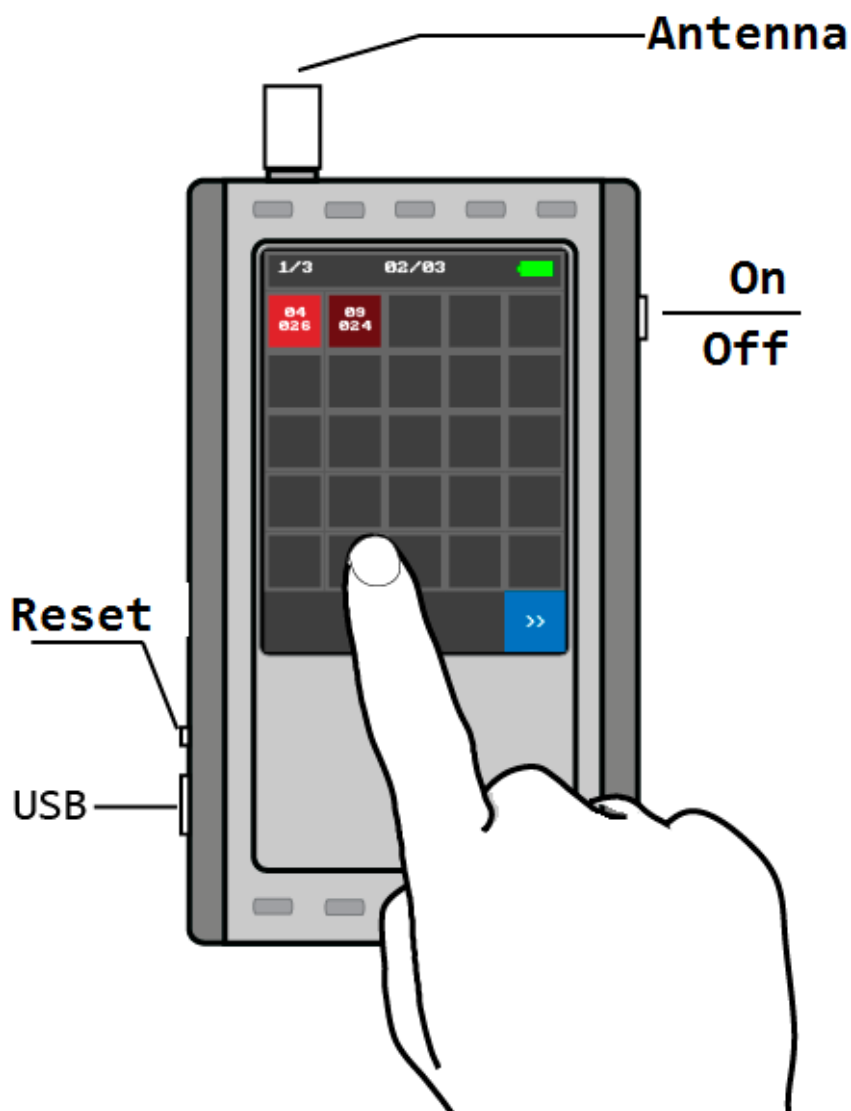
Working with ARCAM

1. You can turn ARCAM on by pressing and holding the on/off button located on the right side. You can release the button as soon as you see the loading screen.
(the firmware version is displayed at the bottom of the loading screen)

Upon successful loading, ARCAM automatically starts scanning the spectrum.

Every detected suspicious signal is displayed on the "main screen" as a coloured "cell" with two rows of numbers inside. The coloring indicates the probability of correct match with the database (brighter colours indicate higher probabilities).

«Main screen» consists of 3 pages of 25-cell arrays, which limits the number of simultaneously detectable signal to 75. Page number is displayed in a top-left corner. You can navigate through pages by pressing either ">>" or "<<" buttons, which can be found at the bottom of the "main screen". Battery charge level is displayed at the top-right corner of the main screen.
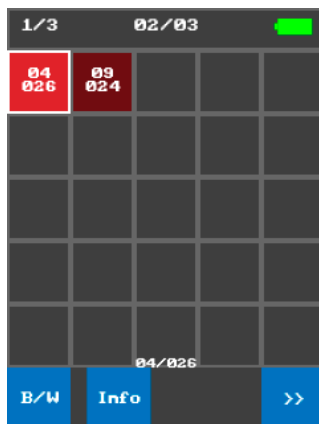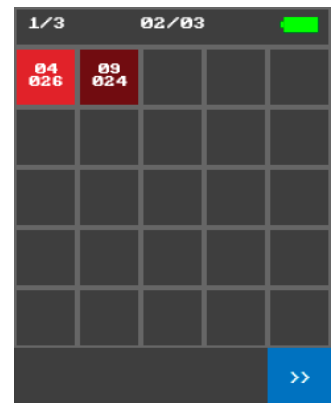
2. You can select any detected signal by pressing on a "cell" (selected cell will be marked with white outline), which will give access to "B/W" and "Info" option buttons.
«B/W» - Will add the selected "cell" to "white list". Selected cell will be marked and transferred to the end of the array at the last page.
«Info» – Will activate the localization mode, which is used to localize the source of the signal by level.

Localization mode
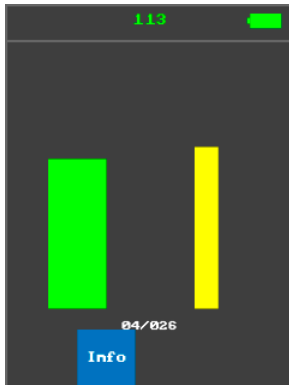
1. This mode can be accessed by choosing the **«Info»** option on a selected "cell".
The screen will display two dynamic graphs of received signal level
green (left) – integral.
yellow (right) - instantaneous.
At the top of the screen, a numerical value of received signal level is displayed in dB

2. In order to localize signal source, the operator should move around the premises with the device until one could find a spot with the highest received signal level.

You can return to "main screen" by pressing the **«Info»** button again.

Adding cell to «white list»

1. Select a cell, then press the **«B/W»** option button. The cell will be transferred to the last page to the end of the array and will be marked by green-coloured font.
Note! Maintaining a proper «white list» of signals that were identified as non-suspicious will greatly increase the efficiency and speed of your ARCAM during further search sessions. Please note that «white list» will be erased from ARCAM's memory upon turning it off (if you want to keep the white listed cells add them to permanent memory).
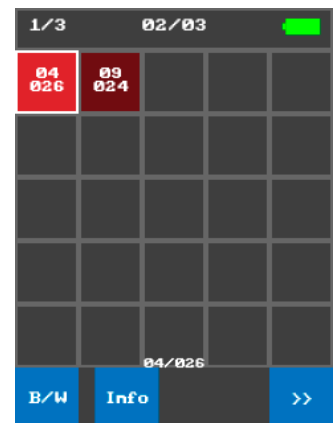
## Adding white-listed cell to permanent memory

If you want a white-listed cell to be kept in ARCAM's memory even after it will be turned off, you will need to add this cell to permanent memory.
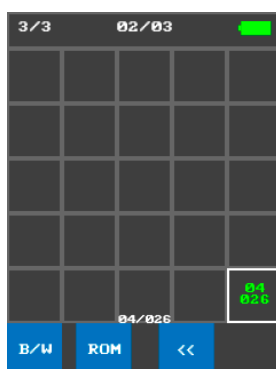
1. Navigate through pages of the "main screen" and select desired white-listed cell. Upon selecting, option buttons **«B/W»** and **«ROM»** will appear at the bottom of the screen.
«B/W» - will remove selected cell from white list and move it back to first page of the main screen.

2. **«ROM»** will add selected cell to permanent memory**.** A message will appear on the screen, asking the user for approval. Choose **«YES»** to confirm writing selected cell to permanent memory. A permanently stored white-listed cell will be marked with an asterisk (*) in its first row.

3. You can delete the permanently stored cell and put it back in the temporarily stored white-list by choosing a permanently stored cell and pressing "ROM" button again. The approval message will appear, this time asking whether you agree to remove selected cell from flash.
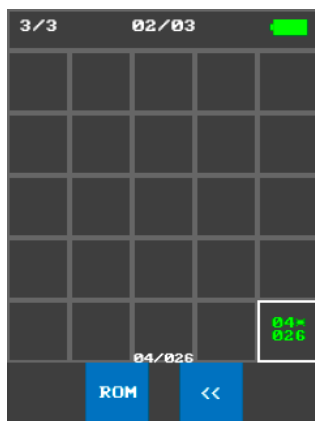
Note! Updating your firmware will erase even permanently stored cells!

Turning off and charging.

3. You can turn ARCAM off by pressing and holding the on/off button located on the right side. You can release the button as soon as you see the "Power Off" message.
4. Before charging, always detach the antenna from your ARCAM. The mini-USB charging port is located at the left side. Whenever you plug in the USB power supply to your ARCAM, it will automatically turn off and enter the charging mode.


IMPORTANT! Never charge your ARCAM with antenna still attached to it - this may result in serious Electro Static damage to pre-amplifier cirquit.

Hard reset.

If you face freezing, or other software issues, you should hard reset the device by pressing the Reset pin, located on the left side of your ARCAM. Device will reboot and load a touch panel calibration screen.

Touch panel calibration
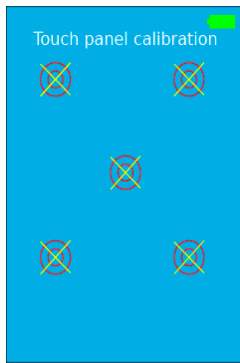
Touch panel calibration can be done with a stylus (included in the set), by pressing the center of the targets that will appear in different parts of the screen.

Upon successful calibration, the ARCAM will load the "main screen". You can access touch panel calibration screen by pressing and holding the screen during loading after turning ARCAM on.