

L A Z

ECT

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LISTENER



E C T



# **ECTlistener v2.6.x**

## **User Guide**



## About ECTlistener

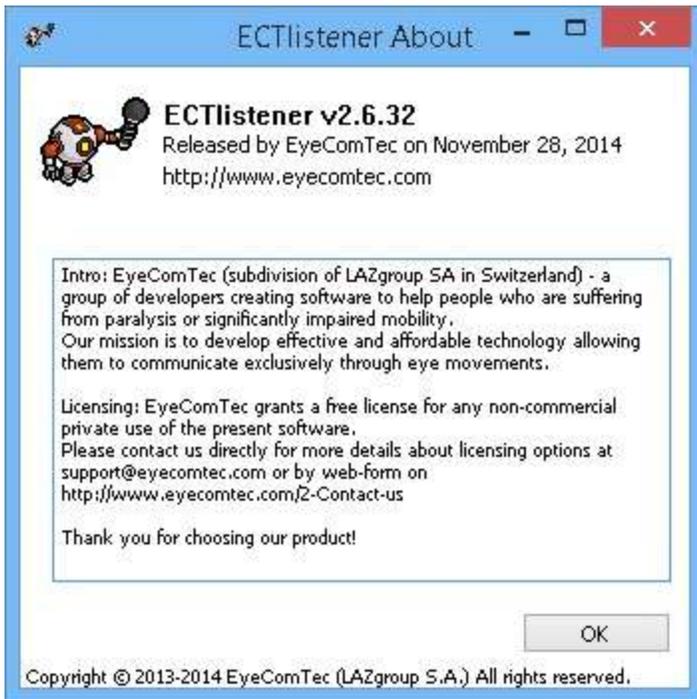
ECTlistener software, created and developed by EyeComTec ([www.eyecomtec.com](http://www.eyecomtec.com)) is intended to analyze sound signals from any microphone. Depending on the length and volume of the signal, ECTlistener emulates key strokes and sends control codes to the receiving software.

The program was created for disabled people (paralyzed or those with extremely reduced mobility) and works in conjunction with other programs (e.g. ECTkeyboard symbol matrix). By using a personal computer with a microphone and both ECTlistener and ECTkeyboard, patients can type text letter-by-letter by using individualized vocal prompts such as moans, loud breathing, sniffing and many other sounds. This allows them to communicate with their relatives, friends, service or medical staff.

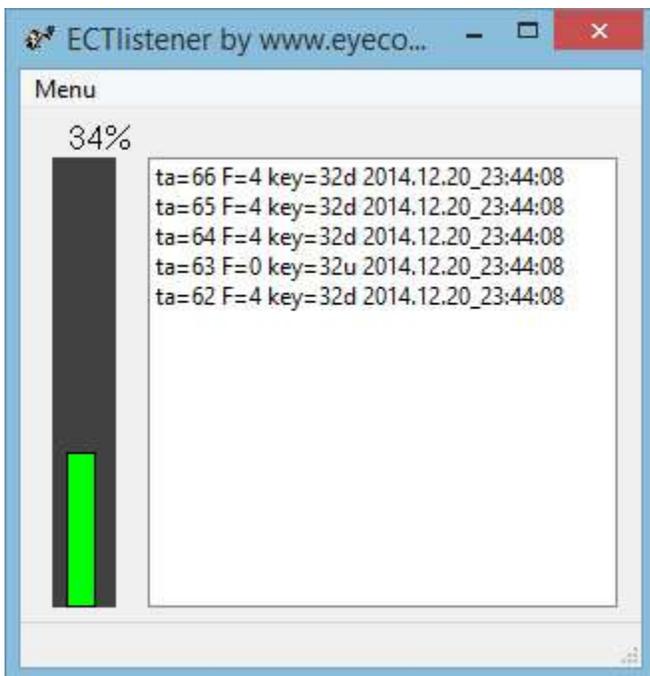
To start the program the user needs only a personal computer equipped with a microphone which are freely available in any electronic or computer shop. ECTlistener can even work on very old personal computers with low productivity, due to the program's low system requirements. Furthermore, fast export or import of all settings, the small size of the program and the ability to work without any installation, allows the user to execute ECTlistener from any removable device, for example, flash card, external hard drive etc.

The program is really customizable and has a user-friendly interface. Initial settings take only few minutes to operate and program is ready to work! ECTlistener is free for any private use, contains no advertising and supports many languages.

The user can utilize the program almost immediately after set-up – all the user needs is the ability to download a small archive with the program, and any personal computer or laptop with a microphone. All these features make ECTlistener an extremely affordable, practical and convenient solution for people with restricted mobility.



(Fig. 1 ECTlistener About Window)



(Fig. 1a ECTlistener Main Window)

## Benefits of using ECTlistener

At the present moment, there are some similar solutions available on the market, which work with several symbol matrix using the user's ability to draw in the air. However, to EyeTecCom's knowledge, all of these programs require special devices, such as those that control air-pressure during the user inhaling and exhaling.

The main advantage of ECTlistener is that it has the same level of effectiveness without the need for having any special (and expensive) equipment! All the user needs to operate the program is a standard microphone. This makes our solution to text-to-speech for users so easy and affordable. Alternative solutions are not freely available and can only be bought directly from a manufacturer, which means additional payments and delays for delivery. Since ECTlistener is a fully-functional software solution, the user can start to operate the program almost immediately after acquiring the software. If the user has any personal computer or laptop with a microphone, all they need is to download a small archive with the program and spend a couple of minutes for the initial set-up

Here are some other benefits of the ECTlistener program:

- Ease to configure. To start operating, the user just needs to change a few parameters and configure the microphone's location and sensitivity. After that, the user can start operating the program.
- User friendly interface. There are no excess protocols or debug modes in the program, and simultaneously, the user can observe all necessary parameters for correct operation.
- Portability and small size of the program. ECTlistener can be executed from any portable device and there are no installation or registry changes required.
- Low system requirements guarantee stable work of the program - even on computers with low productivity or with older models.
- Possibility of fast export or import of settings. This feature allows "hot key" changes of configuration files, making it possible to work with several different users (receiving applications).
- Different localizations. Independently to the user's native language, it is possible to use any desired language using the corresponding language file.
- Free of ads, spyware or any malicious third-party applications.
- The program is totally free for any non-commercial private use.

These benefits make EyeComTec's ECTlistener the most affordable and comfortable solution for people with seriously reduced mobility to communicate effectively with others with minimum expenses on equipment.

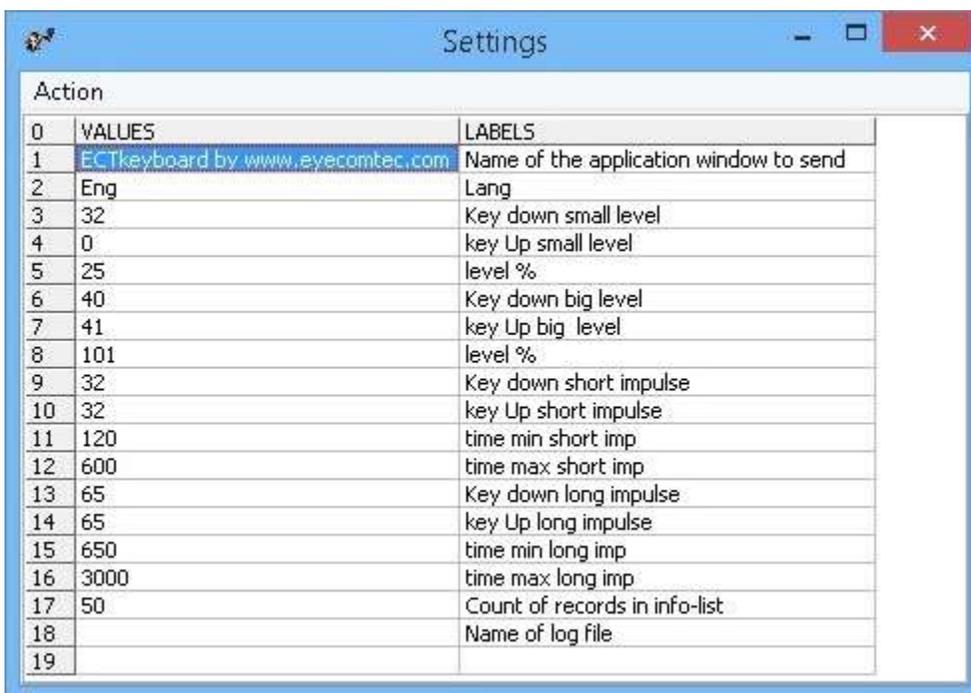
# ECTlistener Quick Start

To start using ECTlistener, the user needs to operate the initial settings of the program. To do so, it is necessary to complete following steps:

- Set receiving software window name
- Set desired volume levels (to identify low and strong signals)
- Set key codes for the receiving software

The user can also set parameters of impulses, for example, using short sound signals. There is a detailed instruction in the "program parameters and ranges" chapter.

To change all parameters it is necessary to open the program settings window using **Settings – Show Settings Form** item of the main menu, or by using the **F3** hot key (see fig. 2).



Action	VALUES	LABELS
0		
1	ECTkeyboard by www.eyecomtec.com	Name of the application window to send
2	Eng	Lang
3	32	Key down small level
4	0	key Up small level
5	25	level %
6	40	Key down big level
7	41	key Up big_level
8	101	level %
9	32	Key down short impulse
10	32	key Up short impulse
11	120	time min short imp
12	600	time max short imp
13	65	Key down long impulse
14	65	key Up long impulse
15	650	time min long imp
16	3000	time max long imp
17	50	Count of records in info-list
18		Name of log file
19		

(Fig. 2. Program settings window)

To allow ECTlistener to work in conjunction with ECTkeyboard symbol matrix and send key codes it is necessary to fill parameter #1 with the corresponding value: **"ECTkeyboard by www.eyecomtec.com"**.

Then, it is necessary to set minimum volume levels for low and strong signals. All sounds with a volume level lower than the minimum level will be ignored by the program. Basic settings are: 25% for a low signal (parameter #5); 70% for a strong signal (parameter #8). However, all these settings can vary from system to system. This is due to the signal levels which depend on microphone sensitivity, distance to the sound source and type of sound. Even though the user can change all parameters of microphone and its position, type of sound depends only on the user's individual abilities. The user can create sounds such as moaning, inhaling or exhaling, and by blowing into the microphone. Also, if the microphone is positioned close to the user, it is possible to use a sniffing sound to operate the program.

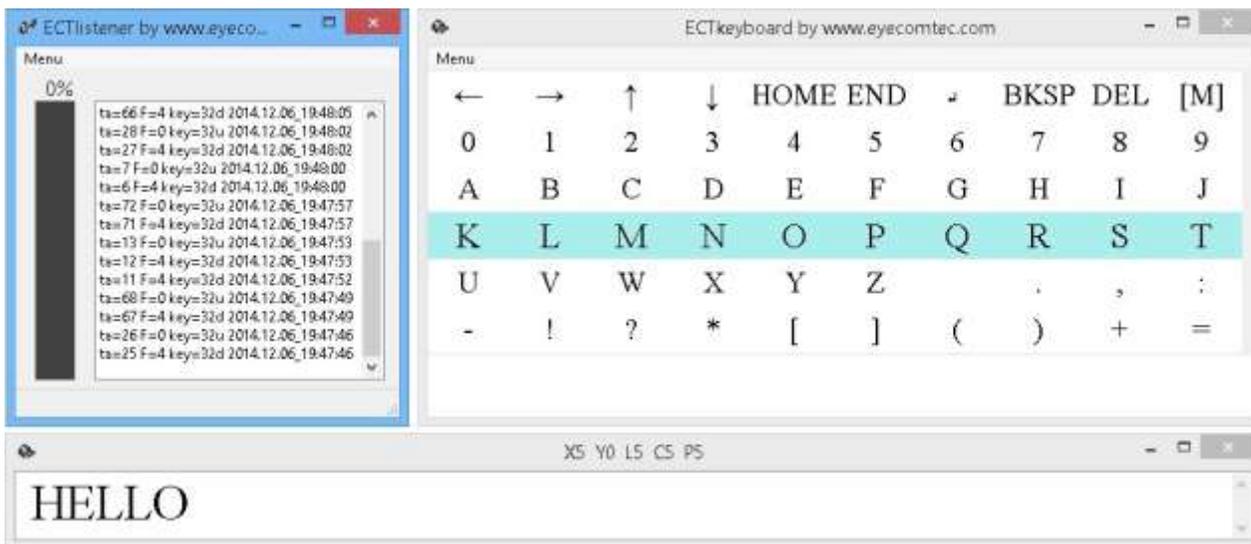
After setting all volume levels it is necessary to select all key codes, which ECTlistener sends to any receiving software. There are fields for low signal #3 (pressed key code) and #4 (released key code). For strong signals there are fields #5 and #6 (see fig. 3).

Action	VALUES	LABELS
0	ECTkeyboard by www.eyecomtec.com	Name of the application window to send
1	Eng	Lang
2	32	Key down small level
3	32	key Up small level
4	25	level %
5	13	Key down big level
6	13	key Up big level
7	70	level %
8	32	Key down short impulse
9	32	key Up short impulse
10	120	time min short imp
11	600	time max short imp
12	65	Key down long impulse
13	65	key Up long impulse
14	650	time min long imp
15	3000	time max long imp
16	50	Count of records in info-list
17		Name of log file
18		
19		

(Fig. 3. Setting key codes and volume levels: green frame – for low noise level blue frame – for strong)

After completing all steps it is then necessary to correctly position the microphone so that when the user makes a low level signal the volume level in the program window will show (for our real example) from 25% to 70% of the program scale, and when the user makes a loud signal, more than 70%. All sounds lower than 25% will be ignored by the program. This feature was implemented so that background noises and regular breathing from the user is ignored and is therefore not picked up by the software.

Now ECTlistener software is ready to work in conjunction with the ECTkeyboard program. By selecting any desired mode of ECTkeyboard, the user can start typing text letter by letter. (see fig. 4).



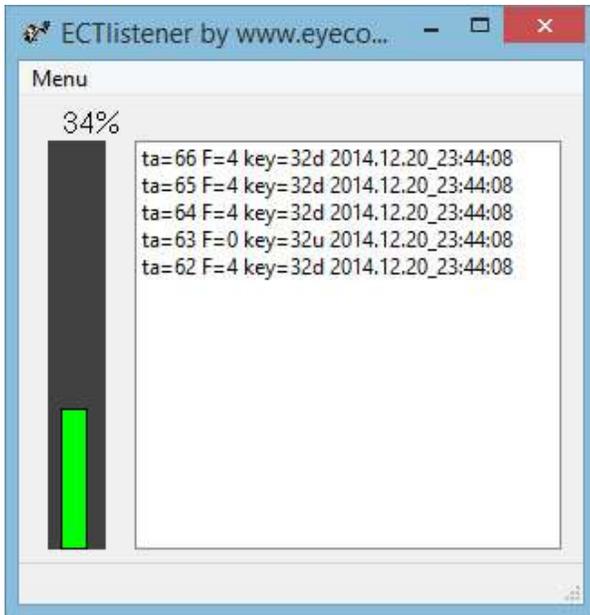
(Fig. 4. ECTlistener and ECTkeyboard simultaneous work)

# Interface and menu

ECTlistener is based on the analysis of signals captured from any microphone. The user can set different buttons of the keyboard and associate them with sounds using different volumes and length. ECTlistener sends key codes to any receiving software, for example, ECTkeyboard symbol matrix.

The program's use is mainly intended for severely paralyzed people, who find mobility and speech difficult or restricted. To control the program the user needs to perform any sound: moans and inhalation or exhalation, as well as many other sounds.

Interface of ECTlistener is relatively simple (see fig. 5).



(Fig. 5. Program main window interface)

There is a volume indicator in the left part of the main window of the program and current session statistics are shown in the right side (information field). All main operations and settings are reachable through the main menu items or corresponding "hot keys."

The information field contains some statistical data and creates a log of all actions in ECTlistener. It allows the user to see in real time if the program works correctly. Each row contains information about a new action performed by the user and can be decoded in the following way:

- **ta** - nominal time units to mark all the events. For example, "5 ta" is equal to one second.
- **F** - type of recognized signal:
  - 0 – strong or low level signal is over
  - 1 – short impulse
  - 2 – long impulse
  - 3 – reserved
  - 4 – low level of the signal
  - 5 – strong level of the signal
- **key** – key code sent to the receiving software. For example, the letter 'd' after any code means that key has been pressed, letter 'u' means that key has been released.

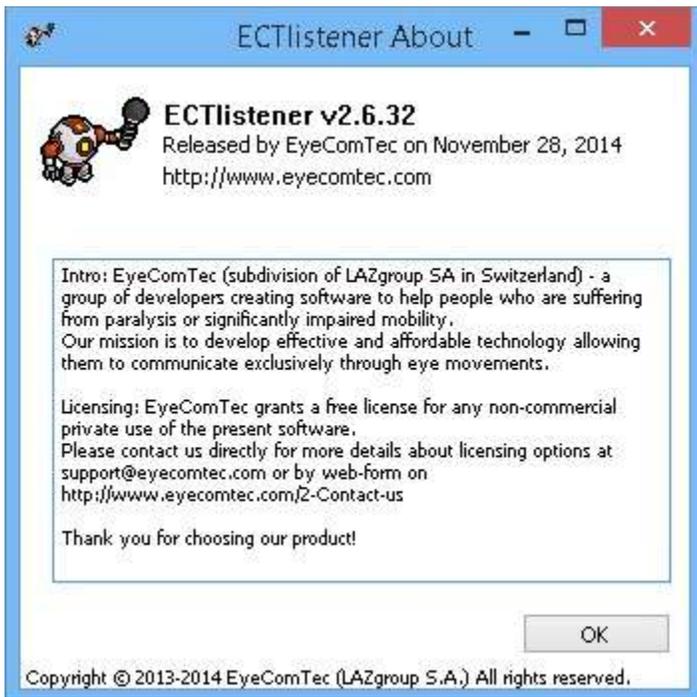
After all the information about nominal time, signal type and key code has been logged, a timestamp displays for each event.

To control the ECTlistener program, the user can utilize the main menu and hot keys. Let's have a look at menu items (see fig. 6).



(Fig. 6. Main menu of the program)

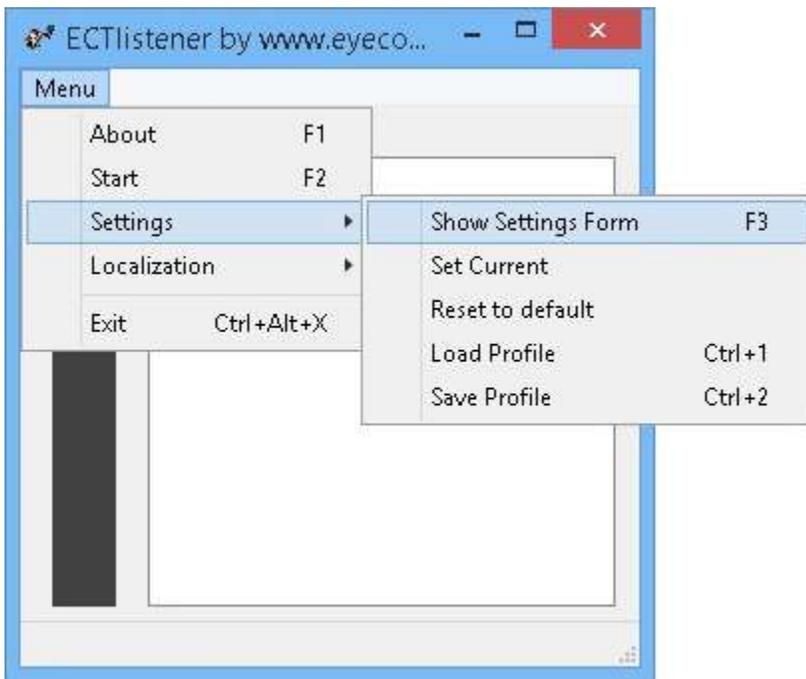
**About;** hot key **F1**. This item opens the information window that shows data about the current version of the software and release date. It also contains a short description about the developers (see fig. 7).



(Fig. 7. 'About' window)

**Start, Stop;** hot key **F2**. Allows the user to start or stop the analysis of the sound and key codes sending to the receiving software. If there is no active microphone in your computer, the system will not allow analysis to begin. This item will stay in the 'Start' state until a microphone becomes active.

**Settings** submenu (see fig. 8).



(Fig. 8. 'Settings' submenu)

**Show Settings Form;** hot key **F3**. This item of the main menu allows the user to open the settings panel of the program. Here, the user can change the receiving software name, change key codes and signal levels, change the length of short and long impulses, and change the appearance of program log.

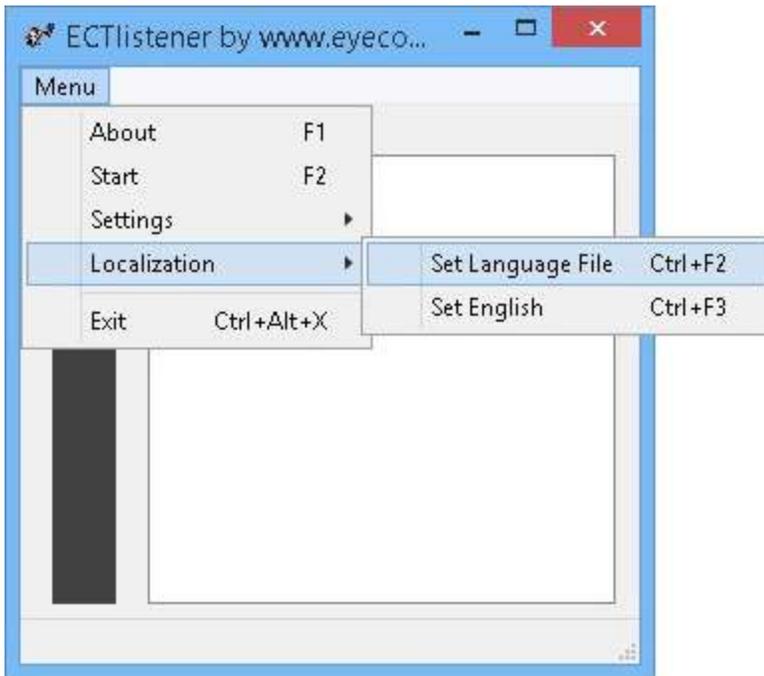
**Set Current.** Applies all settings that were made by the user in the settings panel of the program.

**Reset to default.** If it i's necessary to return ECTlistener to its default settings the user can choose this option from the main menu.

**Load Profile;** **Ctrl+1** key combination. This item allows the user to load a previously created settings file for the program. The user can load a previously made file within these settings.

**Save Profile;** **Ctrl+2** key combination. Allows the user to save all program settings into the file. This option can be useful when the user needs to move ECTlistener to another computer or portable device. This feature is also necessary when several different people are using the program and they use different volume levels (or receiving applications).

**Localization** submenu (see fig. 9).



(Fig. 9. 'Localization' submenu)

**Set Language File; Ctrl+F2** key combination. This item of the main menu allows the user to translate the program's interface to another language (apart from English). The user will see a standard file explorer window, where they may select any desired file with .lng extension.

**Set English; Ctrl+F3** key combination. Allows translating programs interface to English.

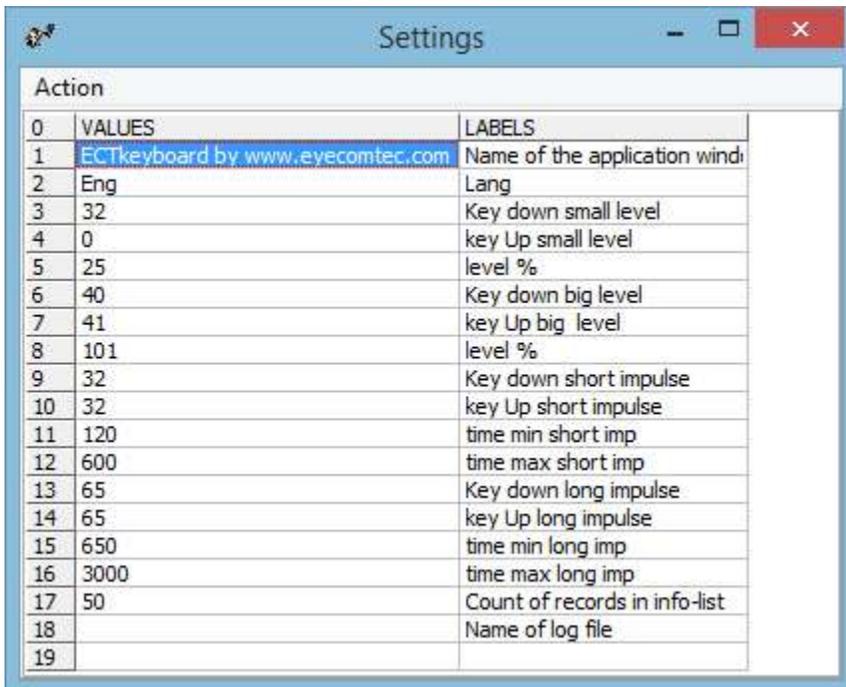
**Exit; Ctrl+Alt+X** key combination. Stops the analysis and closes the program.

# Program Settings

Using the settings panel of the program, the user can change up to 17 different parameters, which makes it possible to adjust the program for personal needs.

Let's take a closer look at the parameters:

1. Name of the receiving-application's window title that will receive key codes from ECTlistener. To operate properly with ECTkeyboard, this field must contain **"ECTkeyboard by www.eyecomtec.com"**
2. Program interface language. This field contains a full path to the localization file that is used at this moment
3. "Press key" code for low signal. To work with ECTkeyboard, the user can set "32" value, which corresponds to the space button
4. "Release key" code for low signal. Press and release codes are usually the same
5. Minimum level to recognize low signal. It's recommended to use values from 20 to 25%
6. "Press key" code for strong signal
7. "Release key" code for strong signal
8. Minimum level to recognize strong signal. It's recommended to use values from 60 to 70%
9. "Press key" code for short impulse
10. "Release key" code for short impulse
11. Minimum length of short impulse
12. Maximum length of short impulse
13. "Press key" code for long impulse
14. "Release key" code for long impulse
15. Minimum length of long impulse
16. Maximum length of long impulse
17. Number of rows in the information field. By default, this is equal to 50, but the user can set any desired amount of rows for comfortable work with the program
18. Name of the log file, which contains all statistical data from the information field



The screenshot shows a window titled "Settings" with a table of parameters. The table has three columns: "Action", "VALUES", and "LABELS". The parameters are listed as follows:

Action	VALUES	LABELS
0		
1	ECTkeyboard by www.eyecomtec.com	Name of the application windi
2	Eng	Lang
3	32	Key down small level
4	0	key Up small level
5	25	level %
6	40	Key down big level
7	41	key Up big_level
8	101	level %
9	32	Key down short impulse
10	32	key Up short impulse
11	120	time min short imp
12	600	time max short imp
13	65	Key down long impulse
14	65	key Up long impulse
15	650	time min long imp
16	3000	time max long imp
17	50	Count of records in info-list
18		Name of log file
19		

(Fig. 10. ECTlistener Settings Window)

## Updates

The latest version of ECTlistener can be downloaded directly from our site:

<http://www.eyecomtec.com/ECTlistener.zip>



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