

# Operation manual for RECORDER

## Digital voice recorder

### Contents

<b>Specifications</b> .....	1
Main Features .....	1
Main technical characteristics .....	2
Card-reader technical specifications .....	3
Delivery set .....	3
<b>Operating the Recorder</b> .....	3
Connecting to PC .....	3
Software settings .....	4
Start/Stop recording .....	9
LED indication system .....	10
Uploading recorded data .....	10
Software installation .....	10
<b>Technical Support</b> .....	13
<b>Warranty and storage</b> .....	13

# Specifications

This digital audio recorder is designed for professional audio recording. The device is produced in a plastic card body, 1.6 mm thick (identical to SMART and HID-cards).

The device records audio data in a special format files which can't be played on other recorders and computer.

Recorded data are uploaded to a PC through special card-reader device via USB 2.0 port, and then are saved there as WAV files, that can be played by default Windows Media Player. The card-reader also allows access to all the internal programming of the recorder, as well as recharging of the internal battery.

The recorder has a built-in hidden LED indicator which is programmed to signal the user about the status of battery charge level and memory capacity.

In case of loss of the recorder, only the owner is able to access the data due to user-set password. The recorder also has a digital signature feature that signs each audio file with a unique encrypted signature (AES 128 algorithm). Audio files recorded with this device are qualified for phonoscope expertise.

## **The record mode can be triggered by means of:**

**Magnetic contacts** - manually by removing the card from card-reader

**Sensor** - manually by pressing the contact group on the card with a finger

**Voice** - automatically, provided the VAS (voice activated system) is enabled

**Timer** - automatically, provided Timer is set and enabled with the software beforehand

**The recording can be stopped either** by inserting it back into the card-reader or special case, or when the internal battery is depleted or the memory becomes full

## Main Features

### **Miniature size**

Identical in size to modern bank cards. There are no buttons and connectors on the body. Hidden indication of operating

### **Long battery life without recharging**

- from 24 to 100 hours in record mode (depends on the selected mode)
- up to 1500 hours in standby mode

### **High quality recording in noisy environments**

Wide dynamic range of recorded signals

### **High level of data protection**

Nobody except the owner has access to stored data secured by a password

### **Adjustable quality/record time settings**

Time and quality settings are easily adjustable via user-friendly software

### **Fast data upload rate**

1 hour of recorded audio data is transferred to a PC in under 20 sec (with 8 kHz, IMA ADPCM) and 4 min (with 24 kHz PCM)

### **Voice-activated recording system (VAS)**

Voice-activated recording at adjustable acoustic level

### **Built-in clock and timer**

All recorded audio data are identified by a date and time stamp

### **Timer-controlled start/stop**

Timer-controlled start and stop of the recording. The user can set up two timers: non-recurring and quotidian. Quotidian timer, once set, will start and stop the recording at specified times every day. Nonrecurring timer, once set, will start and stop the recording at a specified date and time. The recording will go on uninterrupted, provided the device has enough free memory and enough battery charge

### **Looped recording**

The device supports looped recording mode. When this mode is set, the device continues the recording even the free memory is out overwriting the earliest files with the latest audio data. The files being written before activation of this mode remain intact

### **Password protection**

### **Built-in free memory and battery charge LED indicator**

Just pressing the 'gold' contacts of the recorder you can easily estimate battery charge and free memory capacity

### **File signature feature**

Each device has a unique ID number that can be digitally signed to every audio file

## **Main technical characteristics**

Internal flash memory capacity	4 GB
Sampling frequency	24/16/8 kHz
Resolution	16 bit
Compression	PCM/IMA ADPCM
Continuous recording time, PCM/ADPCM	Mono
- 24 kHz	24 / 96 h
- 16 kHz	36 / 144 h
- 8 kHz	72 / 288 h
Dynamic range	90 dB
Power supply	built-in Li-Pol battery
Time needed for full battery recharge	up to 2 hours
Power consumption in standby mode	≤ 0,1 mA
Power consumption in record mode	≤ 8 mA
Battery life in record mode, not less than	24 h
Time to upload fully loaded memory to PC	up to 120 min
Dimensions	85x54x1.6 mm (± 1mm)
Operating temperatures	-10°C - +40°C

## Card-reader technical specifications

Card slot	1
Magnet contact to stop the recording	built-in
Indication	LED
USB 2.0 cord	0,5 m
Dimensions	85 x 72 x 17 mm
Operating temperatures	-10°C - +50 °C

The card-reader has one card slot. It is used as a battery charger for the recorder and allows access to recorder's settings and stored data through USB connection with the PC.

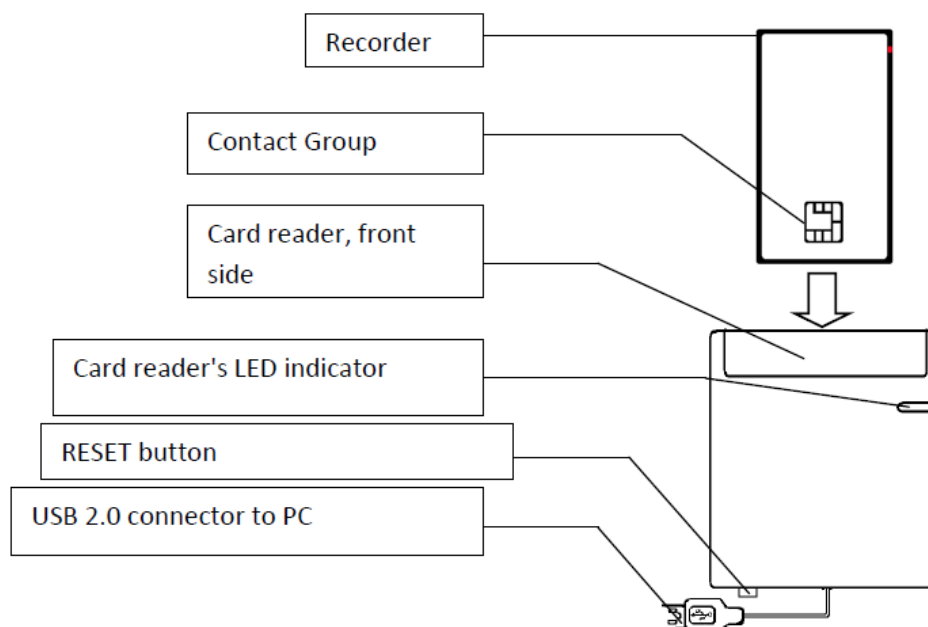
## Delivery set

1. Digital audio recorder
2. USB card-reader with cord
3. USB flash and CD disk with Software
4. Custom case for storage and stop recording

## Operating the Recorder

### Connecting to PC

Connect the card reader to the PC via USB, wait for reader's LED indicator to turn green, and then insert the recorder into the card reader. Install drivers and software from the CD/USB Flash if needed.



**NOTICE!** While inserting the card into card reader, make sure that recorder's contact group is facing the front side of the reader and the green LED indicator on the reader is ON.

Sequence of disconnection from PC:

1. Take out the recorder from the reader.

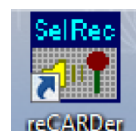
Next connection is allowed not sooner than 15 seconds after disconnection of the recorder from reader. Do not take out the recorder from the reader during change of setting, copying or deletion of files.

2. Disconnect the reader from PC.

**WARNING!** Not following the requirements may cause the breakage of the device.

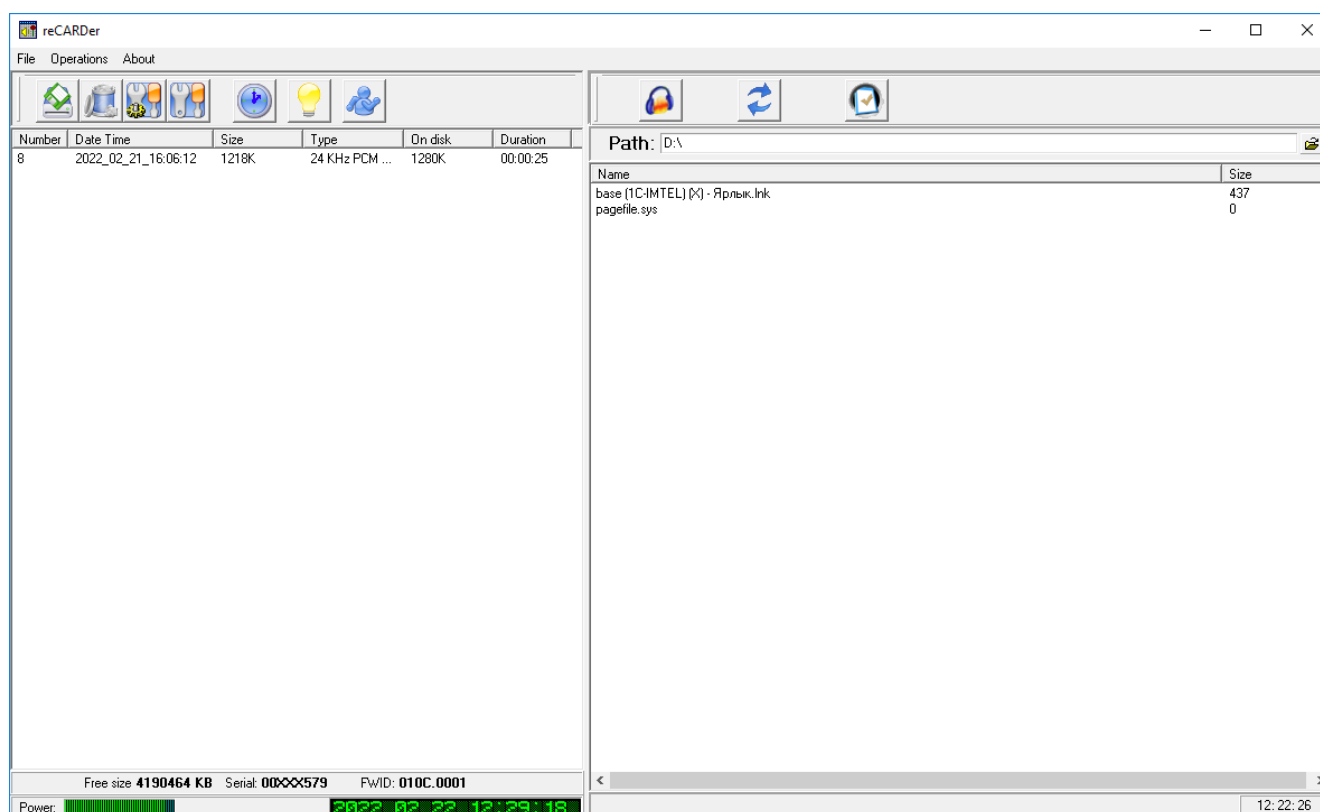
## Software settings

Go to Start=> Programs=> reCARDer=> reCARDer or double-click the icon on



your desktop:

The main window of the software looks like this:



The recorder internal storage contents are in the left bar, PC storage - in the right.

The icons on the control panel have the following functions:



Copy highlighted files to the selected folder on the PC



Remove highlighted files from the device



Recorder settings



Software settings



Synchronize time and date on the device with system time and date



About software



Exit software



Play highlighted file with default media player



Refresh right bar



Check sign

At the bottom of the main window there is information on memory capacity, battery charge level, firmware version, device's unique ID and the recorder's current time and date.

Clicking on the **Operations** menu gives access to the following:



**Copy** - Copy highlighted files to the selected folder on the PC

**Delete** - Remove highlighted files from the device

**Erase All** - Remove all files from the device

**Recorder settings** - Opens recorder settings menu

**Software settings** - Opens software settings menu

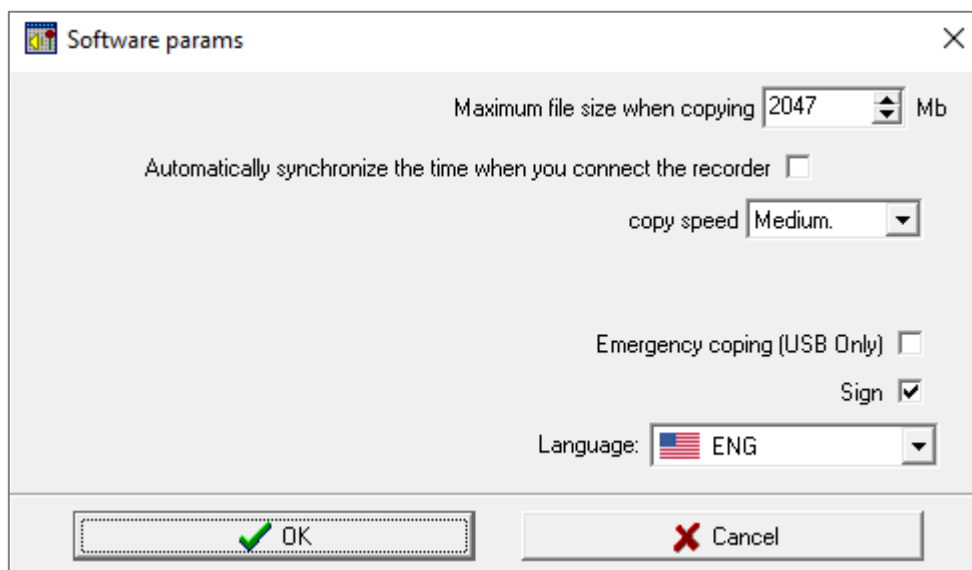
**Clock sync** - Synchronize time and date on the device with system time and date

**Reset** - resets all settings to factory default values

**Formatting** - Starts formatting the on-board flash memory on the device (this action removes all files stored on the device)

**Firmware** - updates the firmware on the device

In the **Software settings** menu you can set maximum size of file which can be generated on the PC while coping the recordings, language (RUS/ENG), enable/disable automatic time and date sync upon connecting to PC, and adjust file transfer speed.



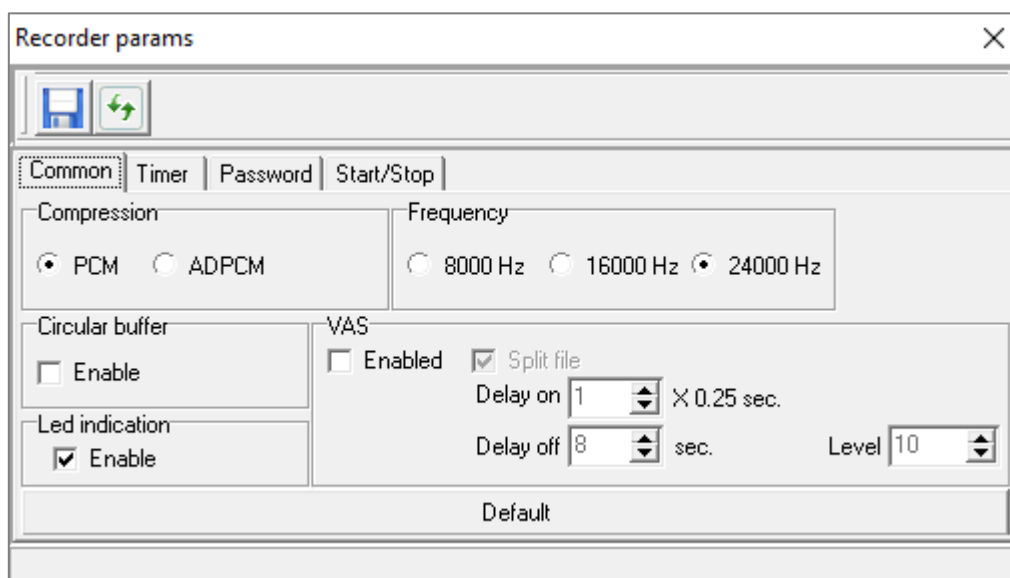
**Emergency copying** -When enabled, conducts full device memory back up upon connecting to PC.

**Sign** - Enables the digital sign feature

**Note:** Network connection parameters refer to Wi-Fi connection capabilities that are not relevant to this reCARDer hardware.

**Tip:** If you get error messages during file transmission, try choosing lower file transfer speeds.

In the **Recorder settings** menu in the Common tab you can set sampling frequency, compression algorithm, enable/disable VAS, activate looped recording mode (circular buffer) and reset parameters to default values. If LED indication is disabled, the device will only indicate on/off and start/stop recording events.



**Delay on** – minimum length of audio signals enough to activate VAS.

**Delay off** – maximum spacing interval between audio signals at which recorded audio file won't be closed.

The **Timer** tab is used to set quotidian and non-recurring timers.

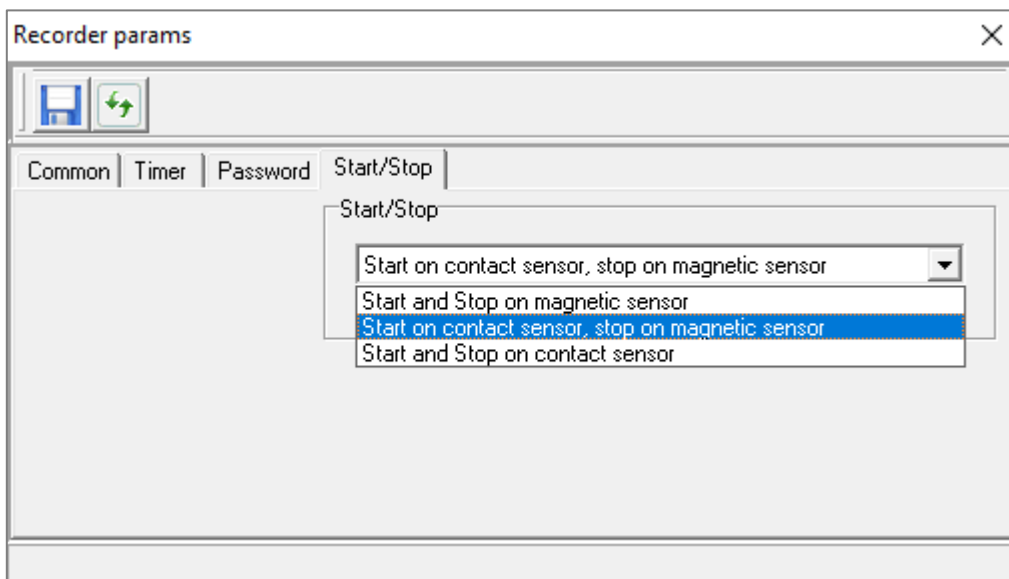
The screenshot shows the 'Recorder params' dialog box with the 'Timer' tab selected. The dialog has a title bar with a close button and two icons (save and refresh). Below the title bar are four tabs: 'Common', 'Timer', 'Password', and 'Start/Stop'. The 'Timer' tab is active and contains two sections: 'Every day' and 'Scheduled'. The 'Every day' section has an 'Enable' checkbox, a 'Start' time field set to '0:00:00', and a 'Stop' time field set to '0:00:00'. The 'Scheduled' section has an 'Enable' checkbox and a table with two columns: 'Start' and 'Stop'. Each row in the table has an 'Enable' checkbox, a date dropdown menu set to '29.12.2017', and a time field set to '0:00:00'.

In the **Password** tab you can set and change the master password for the recorder. The password must consist of no more than 5 symbols. New password is set only after clicking on the **Change** button in the **Password** tab.

The screenshot shows the 'Recorder params' dialog box with the 'Password' tab selected. The dialog has a title bar with a close button and two icons (save and refresh). Below the title bar are four tabs: 'Common', 'Timer', 'Password', and 'Start/Stop'. The 'Password' tab is active and contains three password input fields: 'Old password', 'New password', and 'Again new password'. Each field contains seven asterisks. At the bottom left of the dialog is a red 'Change' button.



The **Start/Stop** tab - Choice of mode of recording turn



Click to save new settings



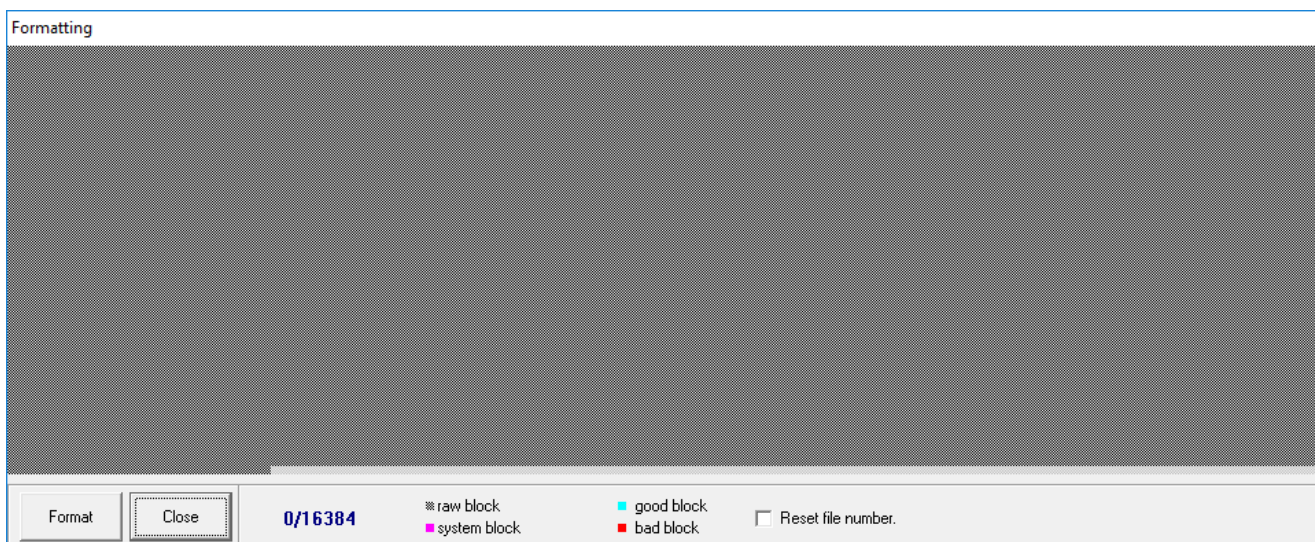
Copy settings from the device

**NOTICE!** After any changing of the parameters, make sure it's saved by clicking on the Save button.

In menu **“Firmware”** the update of sub-program of the recorder is being done. While updating the inner firmware, the disconnection from PC, turn off of PC/fluctuation of power supply.(use a continuous power supply module for PC), worst case scenario, device might break down.

In menu **“Formatting”** formatting of inner flash-memory of the recorder. During formatting process, it is not allowed to turn the device off or disconnect it from PC. During formatting, search for faulty memory parts is being done. The formatting process may last up to 3 hours.

During exploitation period of the recorder memory, faulty partitions may arise. It is recommended to schedule the formatting procedure once or twice a year.



## Start/Stop recording

Choosing mode of Start/Stop of recording is in the menu “Recorder params”:

Mode **“Start and Stop on magnetic sensor”**: For turning on the recording take the recorder out of the reader or special case. Now the recorder is ready for work and automatically switched in to recording mode. To stop the recording put the recorder in to the reader or into a special case.

Mode **“Start on contact sensor/stop on magnetic sensor”**: For turning on the recording touch the “golden” contact and hold it for 4 seconds (indicator starts blinking once every four seconds). To stop the recording, insert the recorder in to the reader or put it into a special case.

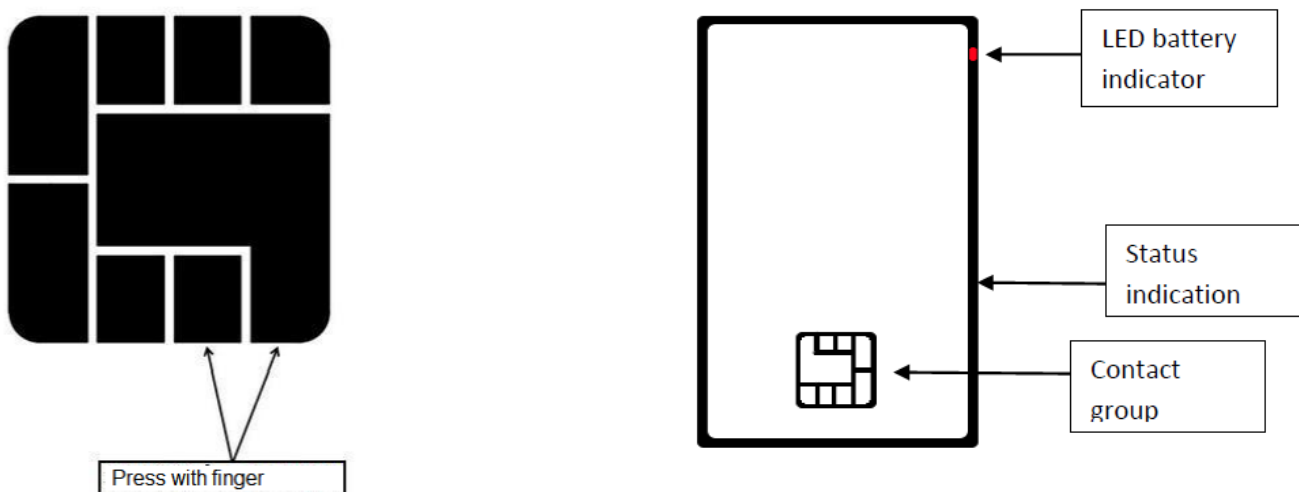
Mode **“Start and Stop on contact sensor”**: To start the recording touch the “golden” contact on the face side of the device (green LED indicator lights up) and hold it for 4 seconds (indicator starts blinking once every four seconds). To stop the recording hold the “golden” contact for 4 seconds again.

**Tip:** recommended VAS acoustic level setting: 8 ÷ 15

Turn-on delay: 1 ÷ 4

Turn-off delay: 5 ÷ 10

**To check the workability** of the recorder during recording touch and hold the contact sensor of the recorder, wait for the turning on light indication.



In process of recording the LED displays the memory capacity and charge of the accumulator with two series of green flashes with 2 second pause. First series of flashes means memory state. Second- battery charge state. 1 flash – 75%-100%, 2 flashes- 15-75%, 3 flashes- less than 15% of battery charge or memory.

Continuous flashing of the LED indicator means memory limit or low charge of accumulator, the recording is not being done.

In case of full charge of the accumulator the LED after continuous blinking for 1 minute stops blinking, and the recorder turns off.

In case of memory reaching the limit of memory capacity, the LED is blinking until the memory will be cleaned.

To clean the memory, connect the recorder through reader to the PC, copy data to the hard drive of the PC and clean the recorder memory partially or fully.

For charging of the accumulator put the recorder in to reader, connect USB to the PC or charging device, the red LED will light up. The finish of charging of the accumulator is determined by the change of the LED indicator to blue.

The approximate time of full charge of the accumulator – 2 hours.

## LED indication system

To check current operation mode of the device, press and hold a finger on the contact group.

The LED indicator signals the status of memory and battery charge with 2 series of green flashes with 2 seconds intervals. First series of flashes indicates the status of memory capacity left. The second series - battery charge level (1 flash -100%, 2 flashes – 50%, 3 flashes – less than 15% of memory of capacity left). Continuous flashing of LED indicator means that either the device has run out of free memory or low battery charge. When the battery is fully depleted, device stops the recording and turns off after about 1 minute of continuous flashing.


When the memory is full, the LED will be flashing until you clear the memory. To clear the memory, connect the recorder via card reader to the PC, copy files you need to a hard disk and delete unnecessary ones. **To recharge the battery**, place the device into the card reader and connect it via USB cord either to PC or to power supply unit. Red LED light will turn on, indicating that the battery is being charged. When the battery is fully charged, the LED light will turn blue. It takes up to 1-2 hours to fully charge a depleted battery.

### If no LED indicators turn on:

- 1) LED indication is disabled in Recorder settings menu.
- 2) If the VAS is enabled, chosen acoustic level is not enough to start the recording.
- 3) The device is out-of-service or its battery is fully discharged.
- 4) Timer recording mode is activated.
- 5) Recorder hang up. To reset the device, insert the recorder into the reader and press hold for 3-5 sec. the RESET button, situated on the back side of the reader

## Uploading recorded data

Connect the Card reader to the USB port of the PC with the **reCARDer software** installed on it, and then insert the card into the card reader.

Choose file(s) you want to download to the PC from the left bar of the software, then click on «Copy»  icon to start the file transfer.

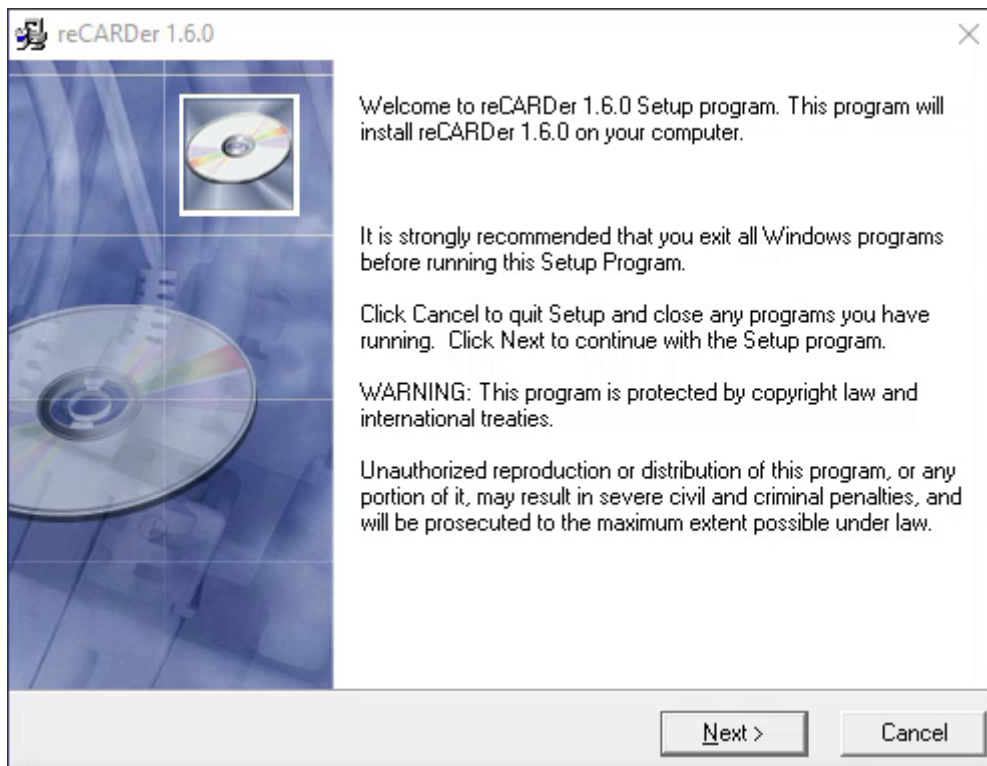
**Tip:** You can also drag and drop file(s) from the left bar to the right with the same effects.

## Software installation

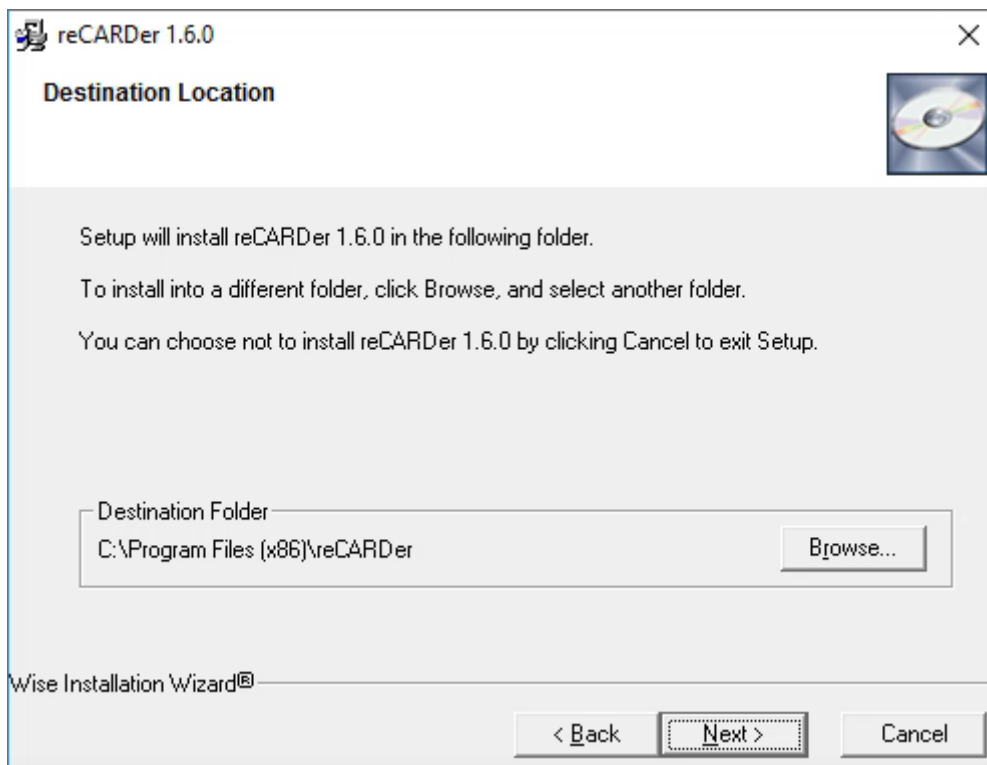
If you have any previous versions of this software installed on your PC, uninstall it first. To uninstall a program, open **Programs and Features** by clicking the **Start button**, clicking **Control Panel**, clicking **Programs**, and then clicking **Programs and Features**. Select a program, and then click **Uninstall**.

Insert the software disk into the PC. Run the program **reCARDer\_XXX.exe** (where XXX-is the version of the software).

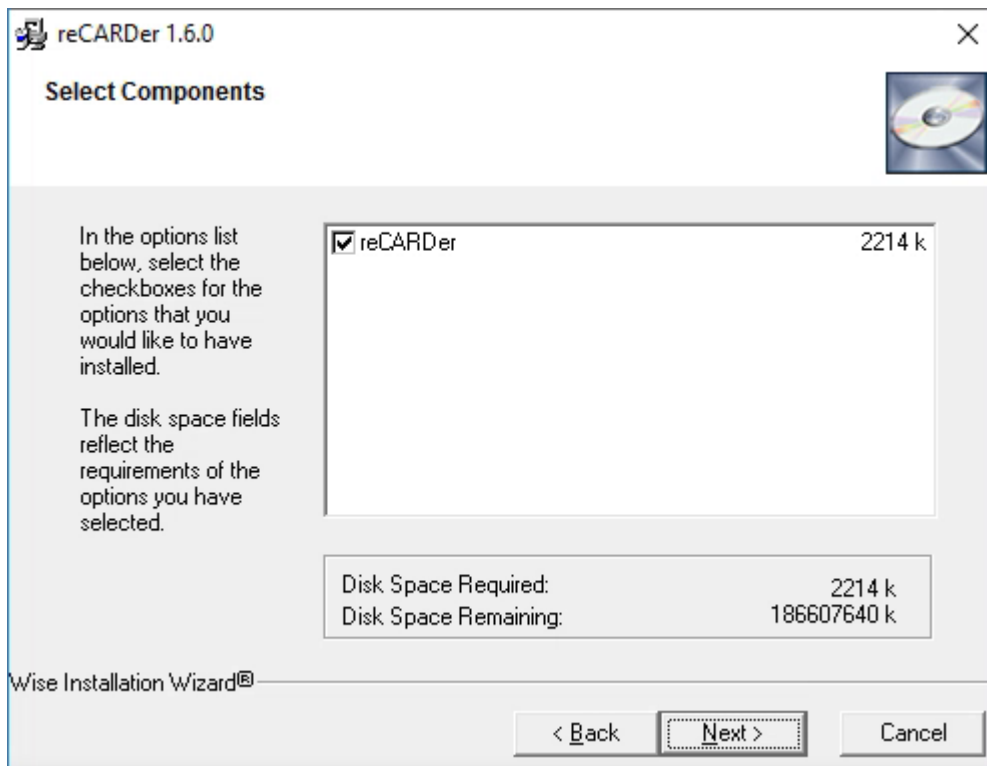
Click **Next** in the appearing window:



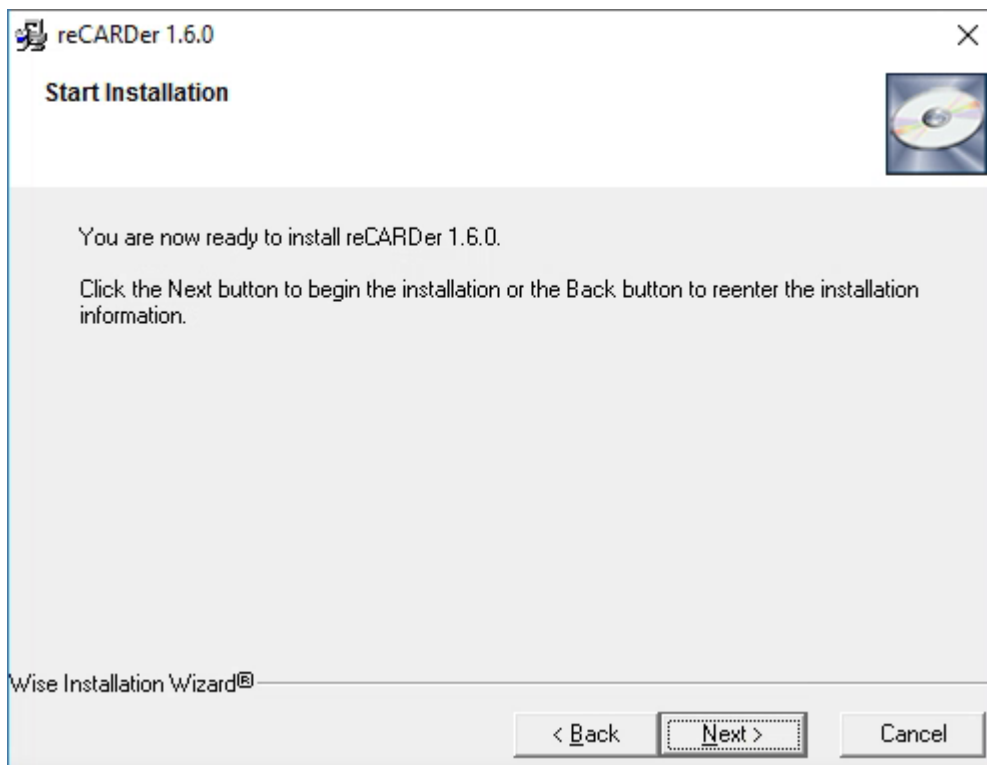
Choose a destination folder for the program or leave default path, then click **Next**.



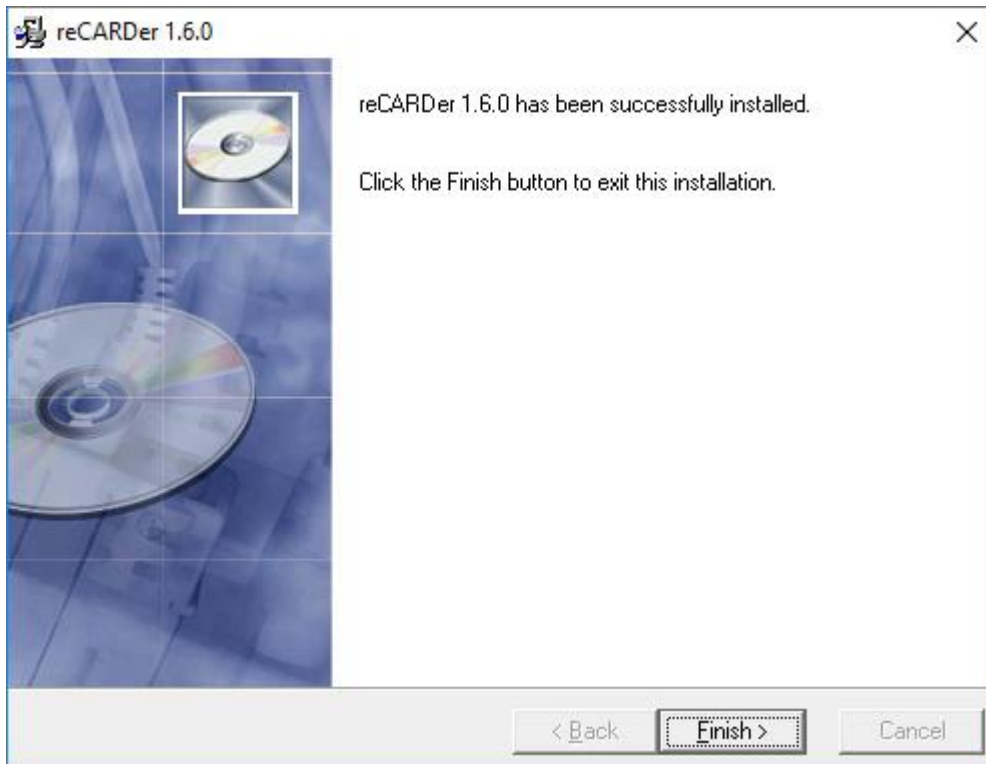
Skip next window by clicking **Next** again.



In the appearing window click **Next** to begin installation.



If done successfully you should see a screen similar to the example below, click **Finish**.



## Technical Support

Technical support is available by e-mail:

[support@ts-market.com](mailto:support@ts-market.com)

We are constantly working to improve the software and documentation. You can always download the latest version of the software for free and get information on products on our website:

<https://www.ts-market.com>

## Warranty and storage

The recorder must be stored at room temperature in the supplied case or in a cad-reader that provide its turning off.

**Notice:** When stored, the device's battery must be **fully recharged not less than once every 2-3 months** to avoid ultra-deep discharge. The battery must be recharged at temperatures **not lower than +5°C**.

Li-Pol battery life is **3 years**. It's strongly prohibited to bend the recorder in order not to damage the built-in battery.

Guaranteed storage time of the data on the memory chip is **5 years**.