Professional NFR - Micro Recorder

Product designation:

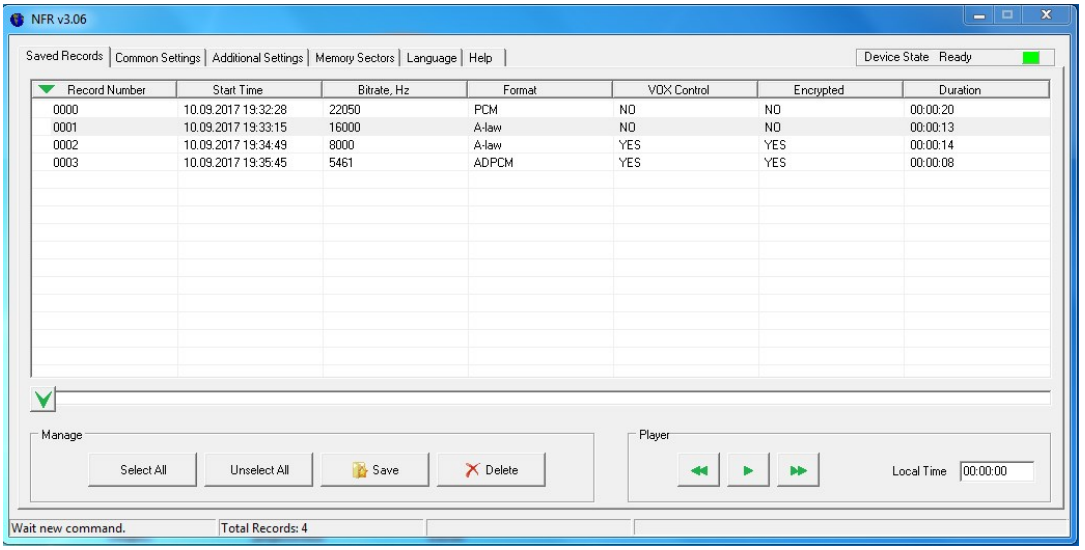
NFR Micro Recorder is intended for operational-investigative means.

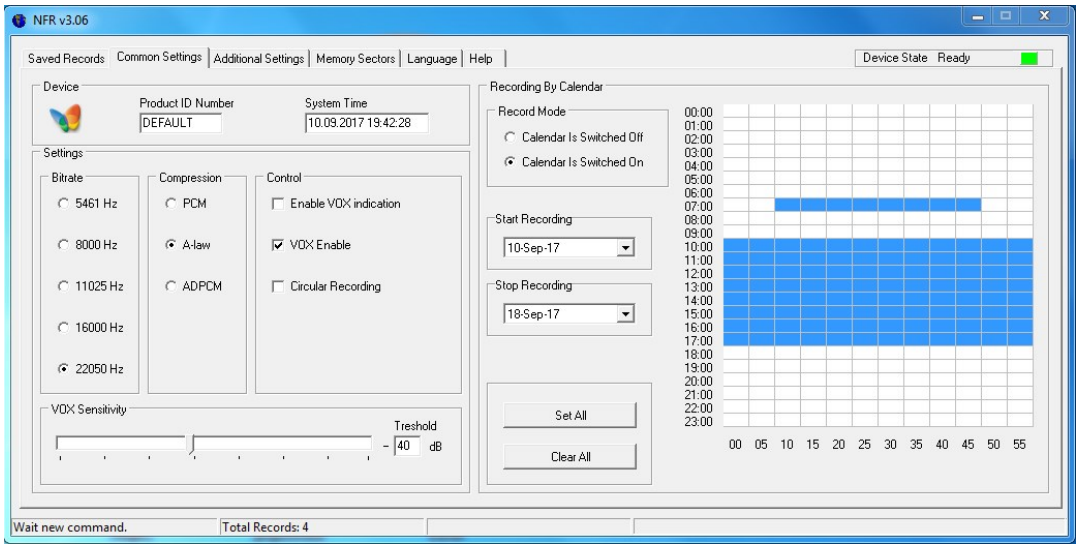
Product capabilities:

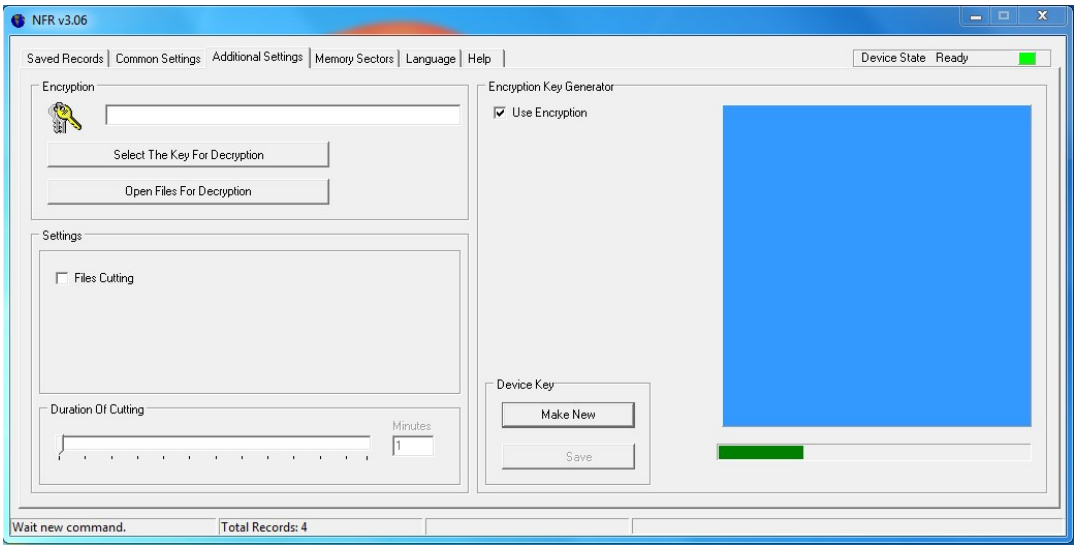
- *A high quality sound recording on the built-in memory microcircuit with the capacity of 4Gb.*
- *A high quality enciphering of the recorded files up to 2048 bits.*
- *Availability of the special generator for ciphering keys.*
- *A support for the main types of compression PCM, A-LAW, ADPCM .*
- *A possibility to select the discretization frequency 5461hz, 8000hz,11025hz, 16000hz, 22050hz.*
- *Switching on/switching out of LED indication of recording/stop or a VOX mode activation.*
- *A circular recording.*
- *A super low consumption of current (See in Table below).*
- *A control of the memory microcircuit resources wear.*
- *Operation is powered from miniature batteries CR2016, CR2025 and (CR2032 – installation by a technical specialist).*
- *Extremely small sizes.*

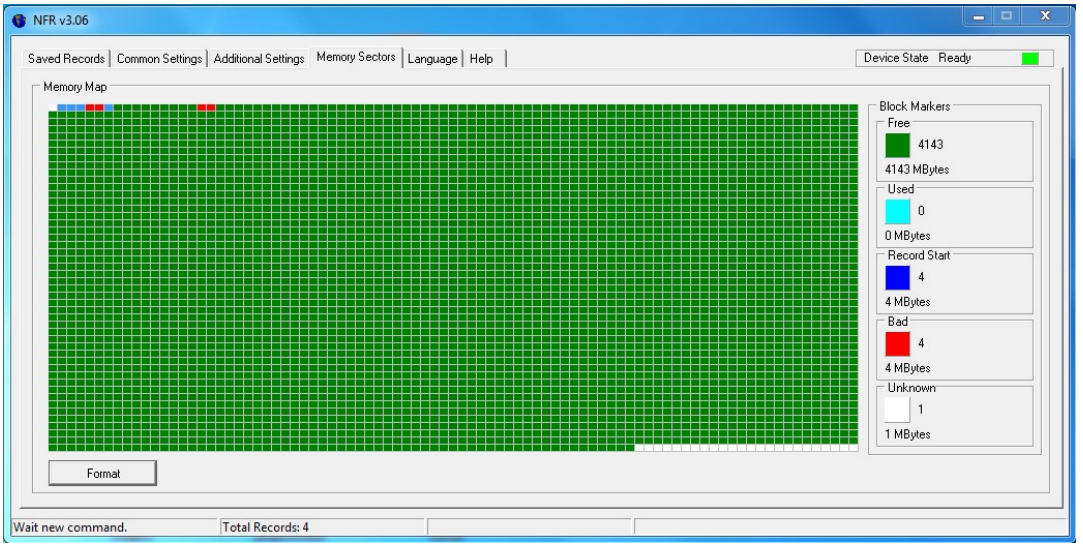
NFR Micro Recorder

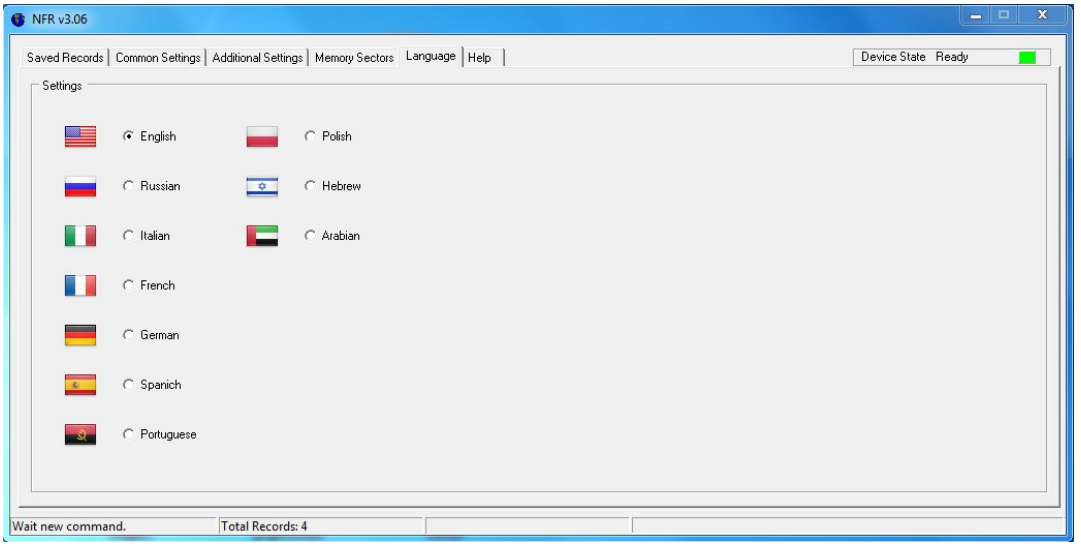
NFR Micro Recorder firmware

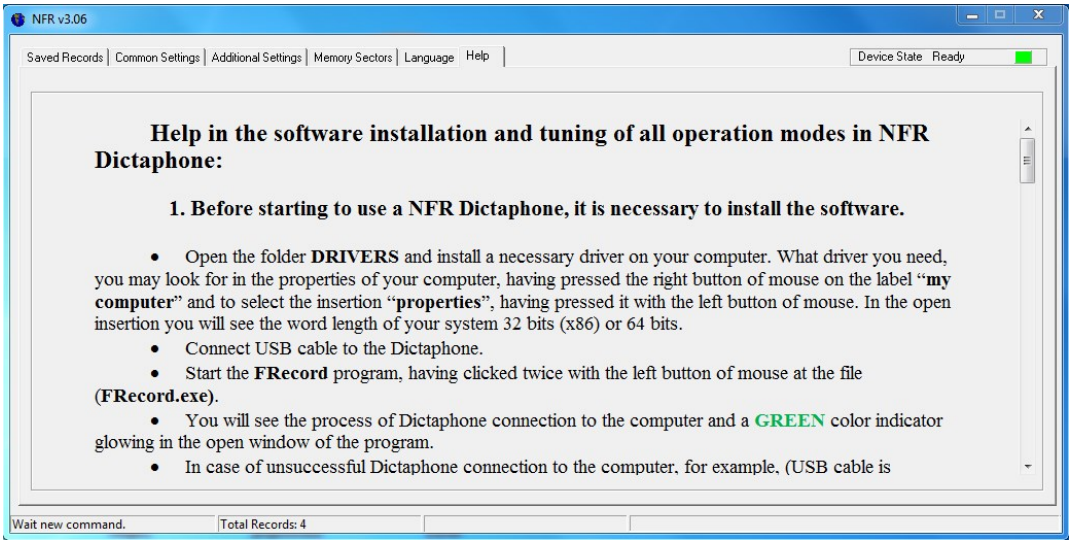







NFR v3.06
Saved Records | Common Settings | Additional Settings | Memory Sectors | Language | Help |
Device State Ready
Memory Map
Block Markers
Free
4143
4143 MBytes
Used
0
0 MBytes
Record Start
4
4 MBytes
Bad
4
4 MBytes
Unknown
1
1 MBytes
Format
Wait new command.
Total Records: 4


NFR v3.06
Saved Records | Common Settings | Additional Settings | Memory Sectors | Language | Help |
Device State Ready
Settings
English
Polish
Russian
Hebrew
Italian
Arabian
French
German
Spanich
Portuguese
Wait new command.
Total Records: 4


NFR v3.06
Saved Records | Common Settings | Additional Settings | Memory Sectors | Language | Help |
Device State Ready
Help in the software installation and tuning of all operation modes in NFR Dictaphone:
1. Before starting to use a NFR Dictaphone, it is necessary to install the software.
• Open the folder DRIVERS and install a necessary driver on your computer. What driver you need, you may look for in the properties of your computer, having pressed the right button of mouse on the label "my computer" and to select the insertion "properties", having pressed it with the left button of mouse. In the open insertion you will see the word length of your system 32 bits (x86) or 64 bits.
• Connect USB cable to the Dictaphone.
• Start the FRecord program, having clicked twice with the left button of mouse at the file (FRecord.exe).
• You will see the process of Dictaphone connection to the computer and a GREEN color indicator glowing in the open window of the program.
• In case of unsuccessful Dictaphone connection to the computer, for example, (USB cable is
Wait new command.
Total Records: 4

Modes of operation:

Activation to NFR Micro Recorder

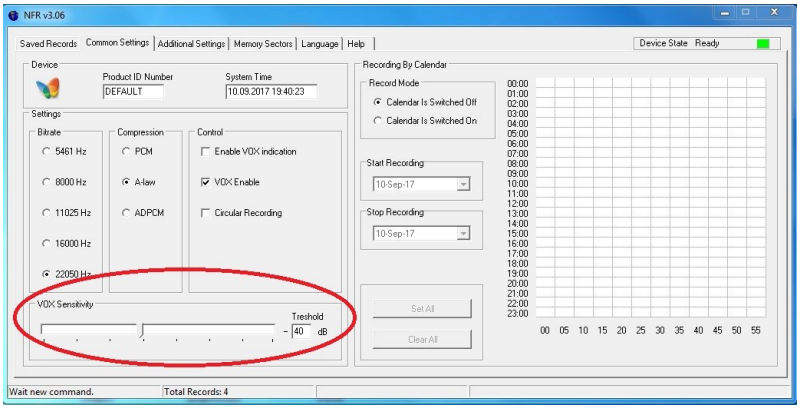
*Keep ON/OFF button depressed for 5 seconds until green LED starts blinking **(which means that recording mode is activated).***

When ON/OFF button is depressed and held so for 5 seconds once again, red LED starts blinking, and the recorder shuts down.

VOX (voice activation):

VOX operation thresholds:

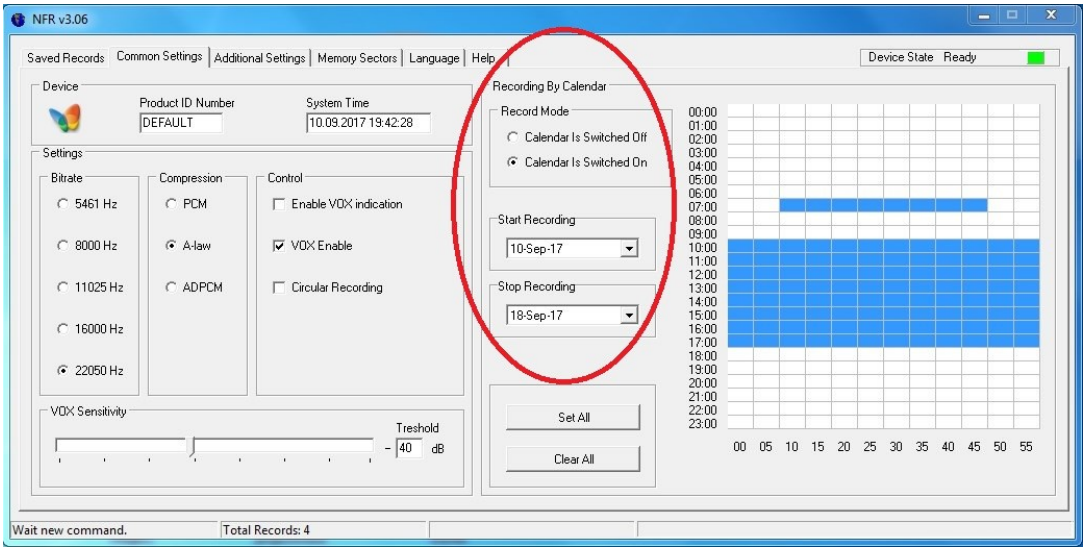
VOX preset threshold	Distance to the microphone (m)
0dB	*No recording*
-10dB	0,1
-20dB	0,5
-28dB	2
-30dB	5
-35dB	10



What is voice activation (VOX)?
With the VOX option on, the product does not operate; recording stops and the module is in its sleep mode. As conversation begins, the product activates to record the conversation.
As silence settles, the module continues recording for 10 seconds, then it switches to the sleep mode. This option is good for saving both battery power and NAND FLASH memory.

Activation of recording function is according to a calendar:

Let's review the following scheduled sound recording settings:



Note:

Recording is on at the final day of operation; however, it will not function at the day to come.

Midnight time can be part of the 24-hour interval; however, in this case, activation after 12.00 PM, and deactivation before 12.00 PM of the next day is necessary to avoid confusion between ON and OFF settings.

Maximal recording time on a built-in memory circuit with the capacity of 4GB and consumption currents from batteries of various names with a voltage of 3.0v:

Freq/KHZ	PCM	A-Law	ADPCM	VOX	ENCRYPT	I, mA	P,mW	CR2016 h,min	CR2025 h,min	Memory (4Gb) Hours/min
22050	●					2,57	8,481	24,59	48,35	27,03
22050	●			●		2,67	8,811	23,55	46,46	27,03
22050	●				●	3,00	9,900	20,54	41,37	27,03
22050	●			●	●	3,15	10,395	19,44	39,38	27,03
22050		●				2,07	6,831	31,54	60,19	54,06
22050		●		●		2,26	7,458	28,55	55,15	54,06
22050		●			●	2,33	7,689	27,56	53,35	54,06
22050		●		●	●	2,56	8,448	25,06	48,46	54,06
22050			●			3,15	10,395	19,44	39,38	108,13
22050			●	●		3,42	11,286	17,53	36,30	108,13
22050			●		●	3,25	10,725	19,01	38,25	108,13
22050			●	●	●	3,54	11,682	17,09	35,16	108,13
16000	●					1,95	6,435	34,05	64,01	37,17
16000	●			●		2,09	6,897	31,33	59,44	37,17
16000	●				●	2,34	7,722	27,48	53,21	37,17
16000	●			●	●	2,42	7,986	26,46	51,35	37,17
16000		●				1,75	5,775	38,23	71,21	74,34
16000		●		●		1,90	6,270	35,04	65,43	74,34
16000		●			●	1,92	6,336	34,40	65,02	74,34
16000		●		●	●	2,07	6,831	31,54	60,19	74,34
16000			●			2,20	7,260	29,48	56,45	149,08
16000			●	●		2,47	8,151	26,09	50,33	149,08
16000			●		●	2,39	7,887	27,09	52,14	149,08
16000			●	●	●	2,26	7,458	28,55	55,15	149,08
11025	●					1,47	4,851	46,23	84,56	54,06
11025	●			●		1,57	5,181	43,12	79,31	54,06
11025	●				●	1,70	5,610	39,37	73,26	54,06
11025	●			●	●	1,80	5,940	37,13	69,22	54,06
11025		●				1,36	4,488	50,26	91,48	108,13
11025		●		●		1,55	5,115	43,48	80,33	108,13
11025		●			●	1,46	4,818	46,44	85,31	108,13
11026		●		●	●	1,47	4,851	46,23	84,56	108,13
11025			●			1,60	5,280	42,20	78,02	108,13
11025			●	●		1,67	5,511	40,24	74,46	108,13
11025			●		●	1,66	5,478	40,40	75,13	108,13
11025			●	●	●	1,73	5,709	38,52	72,10	108,13
8000	●					1,20	3,960	57,38	104,02	74,34
8000	●			●		1,26	4,158	54,43	99,05	74,34
8000	●				●	1,37	4,521	50,02	91,08	74,34
8000	●			●	●	1,44	4,752	47,26	86,42	74,34
8000		●				1,09	3,597	63,49	114,32	149,08
8000		●		●		1,15	3,795	60,18	108,34	149,08
8000		●			●	1,19	3,927	58,09	104,55	149,08
8000		●		●	●	1,25	4,125	55,11	99,53	149,08
8000			●			1,18	3,894	58,40	105,48	298,16
8000			●	●		1,27	4,191	54,16	98,18	298,16
8000			●		●	1,23	4,059	56,09	101,30	298,16
8000			●	●	●	1,33	4,389	51,39	93,52	298,16
5461	●					1,05	3,465	66,23	118,54	109,14
5461	●			●		1,09	3,597	63,49	114,32	109,14
5461	●				●	1,17	3,861	59,12	106,42	109,14
5461	●			●	●	1,21	3,993	57,08	103,11	109,14
5461		●				1,00	3,300	69,53	124,51	218,28
5461		●		●		1,04	3,432	67,03	120,03	218,28
5461		●			●	1,04	3,432	67,03	120,03	218,28
5461		●		●	●	1,08	3,564	64,26	115,36	218,28
5461			●			1,07	3,531	65,05	116,41	436,56
5461			●	●		1,13	3,729	61,26	110,29	436,56
5461			●		●	1,11	3,663	62,36	112,29	436,56
5461			●	●	●	1,16	3,828	59,45	107,38	436,56
Pause (without Voice) "ON" VOX						0,44	1,452	163,25	283,45	Not used

State of recorder	Consumption current	Operation time from CR2016	Operation time from CR2025	Operation time from CR2032
While waiting for a recording activation according to a calendar (MODE OF SLEEP)	0,009 ma	9 years	18 years	27 years

NFR Micro Recorder constituents:

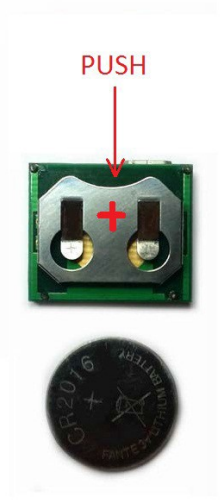
1) Model SPU0410HR5H-1 “Knowles ”.
   Properties:
   Omni-directional Sensitivity: -42 dBA

NFR Dictaphone dimensions:

Length: 31.0mm
Width: 21.8mm
Thickness: 8.5mm

Power source:

A disposable lithium battery: 3.0 V (CR2016, CR2025, CR2032)
Note:
It is possible to use CR2032 battery. This type of battery is possible with a small upward lift of the battery case holder. This type of disassembly can be performed by the untrained worker with the help of a soldering station (soldering iron).
The disassembly time takes no more than 5 minutes.
USB Port



(1)

(2)

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1. Before starting to use a NFR Dictaphone, it is necessary to install a software.

- Open the folder **DRIVERS** and install a necessary driver on your computer. What driver you need, you may look for in the properties of your computer, having pressed the right button of mouse on the label "**my computer**" and to select the insertion "**properties**", having pressed it with the left button of mouse. In the open insertion you will see the word length of your system 32 bits (x86) or 64 bits.
- Connect USB cable to the Dictaphone.
- Start the **FRecord** program, having clicked twice with the left button of mouse at the file (**FRecord.exe)** .
- You will see the process of Dictaphone connection to the computer and a **GREEN** color indicator glowing in the open window of the program.
- In case of unsuccessful Dictaphone connection to the computer, for example, (USB cable is damaged or the drivers, from the folder DRIVERS, are not installed), you will see a **RED** color glowing of the indicator in the open program window.
- In case of the positive Dictaphone connection to the computer, you may proceed to a Dictaphone tuning.

2. Description FRecord program

2.1. "**Saved records**" – this page stores the whole history of audio records. In case of need to transfer the saved files to the computer, it is necessary to isolate the file or several files and to press the button "**SAVE**".

On the insertion "**Saved records**", there is a MONITOR OF STATE of the recorder connection to a computer.
A **RED** color – Recorder is not connected.
A **YELLOW** color – Recorder tries to be connected.
A **GREEN** color – Recorder is connected to the computer.

2.2. "**General tunings**" - There are the following functions on this page:

"**Frequency of discretization**" – A function for a quality record selection.
"**Compression**" – A function to select the level of record compression.

"**Control**" – A function to select an activation of the following tunings:

"**Switching out of all LEDs**" – This function allows switch off a LED at the time of active recording, in order to economize a power and to preserve a concealed mode of recording. It should be noted that in the active mode with a switched-off function

"**Switching out of all LEDs**" and the activated function "**VOX switching**", a **GREEN** color LED will light and continues to light, until coming silence. With coming silence, LED goes out and the recorder stops to record up to the next actuating signal.

"**VOX switching**" – this function is designed for recording, when a signal is available. When the function "**VOX switching**" is activated and signal appears, the recorder starts to record and stops it in 10 seconds following a record completion.
One should remember that the active Enable VOX always has the time to continue a recording for 10 seconds and with the advent of silence, it stops to record in 10 seconds.

"**VOX sensitivity**" – This function operates when a function "**VOX switching**" is active. This function allows install the necessary sensitivity of record activation with needed distance from 1 meter up to 10 and more meters.
Approximate figures of this mode tuning are given in Table.

"**Circular recording**"- this function activates a circular recording, removing the very first records.

"**Record ciphering**" – activation of this function allows record files in the enciphered form. Upon activation of this function, one should proceed to the page "**Additional tunings**" – and to press the button "**To make a new key**", then to put a cursor of computer mouse to the blue field and continue to move a cursor in the arbitrary way along the blue field, until a **GREEN** color band, being below, completes its movement. Whereupon the program suggests You to save the file of the key with a personal name and extension(**.KEY)** .
Save the file of this record.
Also press the button "**To save**" and this key will be stored in the recorder.
Be attentive, after this key storing in the recorder, all subsequent records will be ciphered, precisely, with this key and any **deciphering** with the other key will be impossible!
Store this key file in the safe place. With its help, You will be able TO **DICIPHER** all recorded files.
In case of loss of the key file, any **DECIPHERMENT** of the recorded files is impossible.

"**Recording by calendar**"- this function allows produce a recording according to a calendar. For this, it is necessary to activate the function "**Calendar is switched on**".
If a function " **Calendar is switched off** " is activated, a recording is carried out continually.

"**Product ID number**" - You may record any desired name, consisting of letters and digits.

2.3. "**Additional tunings**"- there are the following functions in this insertion:

"**Files cutting**" – this activated function also activates a runner "**Duration of cutting**".
This function allows record and store files of the determined length from 1 minute to 1 hour.

“**Time legend in active VOX**” - This activated function permits to create a new file of recording with a time legend, giving the start of file formation in 5 seconds following the pause advent. For example, in active function “**VOX switching**” or in active function “**Recording by calendar**”.
This function allows determine the time of start and end of recording.
“**To get the key of decipherment**” – this function permits to get the key with which files recording was carried out in the coded form.
“**Open the coded file”** – this function permits to open a coded file and then to decipher it.
“**Memory sectors**” – This page of the program allows estimate the memory circuit resources.
“**Languages**” – In this page there is a possibility to change the language program interface.
“**Help**” – In this page there is the operating instruction for a micro recorder **NFR**.

In NFR Dictaphone, there is a possibility to determine its present condition (it is switched-on or is in the process of recording).
In order to understand its condition, it is necessary to make a short press on the button.
If the LED flashes with RED color – a Dictaphone is switched off and no recording is carried out.
If the LED flashes with GREEN color – a Dictaphone is in the mode of recording.

Battery replacement should be carried out strictly, as shown in Figure (1), paying attention to the positive and negative outputs. In case of improper battery connection, the recorder failure is possible.

Battery replacement can be carried out by two ways:

1. **Open a recorder casing and replace the battery.**
2. **Push out the battery through the hole, shown in Figure (2), without disassembling a recorder casing and insert a new battery.**

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