

EDIC-Mini Tiny16

Voice Recorder

OPERATION MANUAL

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Contents

| | |
|--|-----------|
| Overlook | 3 |
| Characteristics..... | 3 |
| Specifications | 3 |
| Main Technical Characteristic | 6 |
| Recording Duration Depending on the Model6 | |
| Recording Duration Depending on | 7 |
| Compression | 7 |
| Working with the Recorder | 9 |
| Preparing the recorder for work..... | 10 |
| Making the recordings | 10 |
| Microphone Amplifier Settings | 12 |
| Playing Back the Recordings..... | 13 |
| Recording Methods | 13 |
| Voice Activating System (VAS) | 13 |
| Timer recording..... | 14 |
| Loop Recording Mode | 15 |
| Recorder Settings..... | 16 |
| Connecting to a Computer..... | 17 |
| Firmware Update | 18 |
| Multilanguage Support | 22 |
| Technical Support | 23 |

Overlook

The EDIC-Mini Tiny16 voice recorder is used for professional voice recording onto a flash media following by copying to a computer.

Characteristics

- Extremely small size and weight
- Long recording duration: from 75 to 2400 hours depending on the model (8 kHz sampling rate, compression algorithm – ADPCM (2 bits))
- Very low current consumption
- Wide bandwidth
- Wide dynamic range
- Built-in clock and calendar
- Timed recording
- No moving parts
- Wide operating temperature range
- Stable work in unstable environment (dustiness, shakiness)

Specifications

Using a provided USB cable, a voice recorder is connected to a computer USB socket.

The supplied software, which is situated in the internal memory of the recorder, is compatible with Windows XP(SP3)/Windows Vista and Windows 7. The software allows to save recordings as audio files of WAV format, to adjust the recorder's settings and to use the recorder as a Flash drive for saving and uploading files with sizes from 512 Mb to 16 Gb, depending on the model.

The firmware can be upgraded using a USB interface. Recorder voice activating system, VAS, allowing effective compressing pauses in messages, increases the length of a record while minimizing memory usage. Time intervals stay the same. If recording are copied to a PC, pause lengths can be restored or skipped according to program settings.

A light emitting diode, LED, signals according to one of the operating modes. A recorder can function in the flash media mode, allowing using a recorder for data storage and exchange. If needed, a recorder can be used simultaneously as a flash media and as a voice recorder.

To prevent unauthorized access to a recorder and stored data, password protection can be used. In addition, along with its both time and date, every record has a digital audio watermark. It allows

to detect what recorder made this record and what changes the record underwent.

The firmware provides multi language support.

Depending on modifications,

the EDIC-Mini Tiny16 voice recorders differ by:

- Operating control (button or switcher)
- Memory space
- Recorder's case
- Power supply

Main Technical Characteristic

| Characteristics | Value |
|-------------------------------|--|
| Ratio signal/ noise, dB | -80 |
| Mode | mono |
| Compression algorithm | 1. Without compression 2. U-Law () 3. ADPCM (2 and 4 bits) |
| Sampling rate, kHz | <ul style="list-style-type: none">• 5.0• 6.6• 8.0• 10.0• 13.3• 20.0 |
| Frequency band (Hz) | 100-10,000 |
| PC interface | USB 1.1, 2.0 |
| Data communication rate | Up to 5.5 Mb/sec |
| ADC digit capacity | 16 bits |

Recording Duration Depending on the Model Table 1

The recording duration depends on the recorder's model. Table 2 shows the correspondence in Mono mode, sampling rate is 8 kHz, and with ADPCM (2 bits) compression algorithm.

| Model index | Recording duration | | Built-in Flash memory capacity |
|-------------|--------------------|----------|--------------------------------|
| | In minutes | In hours | |
| 75h | 4,480 | 74.6 | 512 Mb |
| 150h | 8,960 | 149.3 | 1 Gb |
| 300h | 17,920 | 298.6 | 2 Gb |
| 600h | 35,840 | 597.3 | 4 Gb |
| 1200h | 71,680 | 1200 | 8 Gb |
| 2400h | 143,360 | 2400 | 16 Gb |

Recording Duration Depending on Compression

Table 2

The recording duration depends on compression. To detect the recording duration that can fit on your recorder's memory, check the data in Table 3. Evaluate the duration by dividing the recorder's model index by a correspondent coefficient from the table.

Example: for 150 model, the recording duration is $150/8 = 19$ hours (without compression, mono, sampling rate is 8 kHz).

Different settings allow finding effective quality/recording time ratio according to your demands. Sampling rates affect a band of audio frequencies and compression methods affect the space of memory used while recording.

You can get the best recording quality (along with the biggest memory consumption) in a mode without compression. Then, as the recording quality regresses (and the memory consumption diminishes), the next modes are: logarithmic (u-Law), 4-bit ADPCM, and 2-bit ADPCM. Pay attention that the modes with high sampling rate increase the recorder's consumption current and thus decrease the rechargeable battery life.

| Compression method | | Sampling rate, kHz | | | | | |
|---------------------|----------------------------|--------------------|-----|-----|------|------|-----|
| | | 5 | 6.6 | 8 | 10 | 13.3 | 20 |
| Without compression | Coefficient | 5 | 6.6 | 8 | 10 | 13.3 | 20 |
| | Recording density Kbit/sec | 5 | 6.6 | 8 | 10 | 13.3 | 20 |
| Log (uLAW) | Coefficient | 80 | 105 | 128 | 160 | 213 | 320 |
| | Recording density Kbit/sec | 2.5 | 3.3 | 4 | 5 | 6.8 | 10 |
| ADPCM (4 bits) | Coefficient | 40 | 52 | 64 | 80 | 108 | 160 |
| | Recording density Kbit/sec | 1.25 | 1.6 | 2 | 2.5 | 3.4 | 5 |
| ADPCM (2 bits) | Coefficient | 20 | 26 | 32 | 40 | 54 | 80 |
| | Recording density Kbit/sec | 0.6 | 0.8 | 1 | 1.25 | 1.7 | 2.5 |
| | Recording density Kbit/sec | 10 | 13 | 16 | 20 | 27 | 40 |

Working with the Recorder

Table 3

Preparing the recorder for work

Before recording, turn on the recorder. For different models, there are different ways to turn on the recorder. You can find a full description of how to turn on the recorder in the recorder instruction's supplements.

Making the recordings

After you turn on the recorder, start (turn on) recording. Methods of starting recording are different for different models. You can find the full description in the recorder's instruction supplements.

After you start recording, the recorder flashes 5 times and then starts recording. While recording, the recorder's LED indicates the recorder's operating modes by two successions.

If you turn on recording by a button, recording will start when you release the button. The indication happens in the following order: the first flash succession, a pause for 2...4 seconds, the second succession, and then a pause for 7... 10 seconds.

The first succession corresponds to the battery charge at the moment when recording begins (for models with the power supply from a battery)

or a current rechargeable battery charge (for models with a power supply from a rechargeable battery).

- 1 flash means that the charge is close to maximum,
- 2 flashes – the charge is enough for work,
- 3 flashes – you need to change the battery or charge the rechargeable battery.

The second succession corresponds to the amount of the recorder free Flash memory space.

- 4 flashes mean 0...25% memory is free,
- 3 flashes – 25-50%,
- 2 flashes -50-75%,
- 1 flash – 75-100% is free.

When you recorded all you need, stop recording. When you stop recording, the recorder LED flashes once, but this flash duration can last for some seconds depending on recorder's memory capacity.

After you stop recording, the recorder is in a stand-by mode. In this mode, the recorder power consumption is very low so the recorder can

remain without charging (or changing the battery) for a long period of time (depending on the recorder model).

If while recording the free memory space ends or the battery (rechargeable battery) is discharged, the recorder stops automatically and switches into stand-by mode. The recording made will be saved.

Microphone Amplifier Settings

In the recorder, you can set the microphone amplifier settings. You can set a fixed or automatic gain control (AGC). AGC changes the signal amplification automatically depending on the signal level. So you can record a very loud audio signal (nearby an audio source) in its true value. Also, you can amplify a weak signal (a distant source).

You can vary AGC settings to make recording fit your need.

Change AGC settings using the RecManager for EdicTiny16 program. The whole process of setting includes setting of maximum amplification and one of the pre-set settings of amplification modes

Here are our recommendations for AGC settings:

- Fixed amplification without AGC;

- AGC 1 – for recording in quiet room;
- AGC 2 – for recording in noisy room;
- AGC 3 – for recording at long distance;
- AGC 4 – for recording in spacious noisy areas;
- AGC 5 – for recording outdoors.

Playing Back the Recordings

You can play your recordings back on a PC using any program of audio playback (for instance, Windows Media Player). For this, upload the recordings to the computer using the RecManager for Edic Tiny16 program. You'll find more details about the uploading of the recordings to PC in the Manual to RecManager.

Recording Methods

You can use the recorder varying its operating modes. In addition to described above possibilities to turn on recording by the different controls, you can use the VAS mode, use timers' settings, and circular recording.

Voice Activating System (VAS)

Voice Activating System allows to reduce (up to 100 times) the memory and power consumption.

When you turn on the Voice Activating System, the recorder checks the level of the audio signal. If the signal is above the threshold (you can change the threshold in the recorder's settings), the recorder saves the audio signal. Every time when the signal becomes below the threshold (silence), recording will stop, but the duration of this pause will be saved. Recording will start again when the signal is above the threshold.

The LED indication is the same as in other modes (two successions) when the audio signal is above threshold. When the signal is below threshold, the LED has a weak luminescence.

When you upload the recording to a PC, you can decide what to do with the pauses: to save them in the file or delete. If you save the pauses, the audio recording duration will be equal to the audio signal's duration. If you do not save the pauses, in a file, all the recorded parts will go on one after another without breaks. It is possible to copy and play back some voice segments in the recordings, using VAS.

Timer recording

Recording can start automatically with the help of built-in timers. The recorder has two timers: a once

timer and a daily timer.

Use the daily timer when you need to start and finish recording every day at the same time. In the settings, you can set the time for beginning and end of the recording (for instance, 12:50 and 13:20). It means that at 12:20 (12:20 pm) recording starts and at 13:20 (1:20pm) recording stops.

Use the once timer if you need to record something that will start at a certain date and a certain time and will finish, also, at a certain date and time. For this, you need to set these data in the recorder's settings for the once timer (for instance, the beginning is at 23:50 on December, 31, 2010, and the end is at 00:10 on January, 1, 2010).

In both cases, recording will be going on while there is free space on the recorder's memory and the recorder's battery (rechargeable battery) is not discharged.

You can stop recording by timer if you press the recorder button or set the recorder's switch into "REC" position and then to "STOP" position for 2-3 seconds.

Loop Recording Mode

You can choose a loop recording mode if you don't want to stop your recording when recorder does not

have free memory space. In this mode, the newest data are recorded over the oldest one. So at the moment when you stop recording, your recorder will save the newest data that were recorded just before turning off.

You can use recorder memory space for a loop recording partly or fully. The amount of memory space defines the duration of loop recording.

Recorder Settings

Use the RecManager for Edic Tiny16 program to change the recorder's settings. After you installed the program on your computer, run the program. The full program description is on the supplied CD. This program provides settings of:

- Turning on and adjusting the timers
- Turning on and adjusting VAS (Voice Activating System)
- Turning on and adjusting of the loop recording
- Adjusting quality settings
- Adjusting operation control (depends on the model)
- Password setting
- Synchronization of the date and time with a PC
- Adjusting microphone amplifying

- Recordings' downloading and uploading

Connecting to a Computer

Connect the recorder to a computer USB port using the supplied USB cable. While connecting, the recorder LED will flash. The system will recognize removable disc. Open it and run the file "RecManager.exe". After the programs loads the recorder will be detected by the PC and recorder's contents will be shown in the program's window.

Make all the operations you need. Then close the program and disconnect the recorder from the computer.

For the full information about the program, read the Manual to RecManager, which is situated in the internal memory of the recorder.

Please note! *Don't turn off the recorder with RecManager being busy with some operation (the LED is flashing during this). This may lead to data damage.*

When the recorder is connected to PC, simultaneous recording is impossible.

If the recorder is in the mode of recording, and

recorder is connected to PC, the recording stops for the time of the connection.

Firmware Update

There should be RecManager program installed on your PC. It is intended for recognizing the recorder when connecting it to the PC and operating it.

ETS16_FW_Updater_xx_x_Acc.exe (for recorders with rechargeable batteries),

ETS16_FW_Updater_xx_x_Bat.exe (for recorders with batteries) or

ETS16_FW_Updater_xx_x_OldBat.exe (for B25 and B26 recorders) — the program intended for updating firmware is started from your PC.

ETS16_ImgWriter.exe — the program is started from your PC. It is aimed at uploading new version of RecManager program into the Recorder's memory.

All these files can be downloaded from our site www.ts-market.com or from the software CD, if it's available.

TO UPGRADE THE FIRMWARE, FOLLOW THESE INSTRUCTIONS:

1. Download the new upgraded software from www.ts-market.com or from the software CD, if it's available.
2. Install (if it wasn't installed before) RecManager program. Don't run it. The corresponding driver should be installed together with the program so that PC can define the connected audio recorder.
3. Activate your Recorder if automatic activation isn't presupposed.
4. Turn the recorder on and connect it to the computer.
5. Run the updater program from the directory ETS16_FW_Updater_xx_x, where "x_x" is the number of the firmware version.
 - for recorders with rechargeable batteries – ETS16_FW_Updater_xx_x_Acc.exe
 - for recorders with batteries – ETS16_FW_Updater_xx_x_Bat.exe
 - for B25 and B26 recorders – ETS16_FW_Updater_xx_x_OldBat.exe
6. Follow the program's instructions. The Program operation can last several minutes, depending on audio recorder memory & PC

speed.

7. After the message «Press any key to exit» appears in the window, press any key to quit the program automatically. Updating is complete.
8. Run the Image Writer program – Start ETS16_ImgWriter.exe program, which will record the RecManager program into the recorder's memory. If your operational system is Windows Vista, run this program “as an Administrator”. Follow the program's instructions.
9. After the message «Press any key to exit» appears in the window, press any key to quit the program automatically. The new version of the program is uploaded into the Recorder's memory.

Now when connecting to the PC the Recorder will be recognized as a removable storage. Therefore, RecManager is to be started from there (there is no necessity to install RecManager onto the PC). Check it, connecting the Recorder off the PC and connecting it again. Transfer the Instructions from the Recorder's memory to your PC to have a permanent access to them.

PLEASE NOTE!

In case the new version doesn't answer your demands, there is an opportunity to return to the previous firmware version: run the appropriate file from the directory Downgrade:

- for recorders with rechargeable batteries –
ETS16_FW_Downgrade_x_x_Acc.exe
- for recorders with batteries –
ETS16_FW_Downgrade_x_x_Bat.exe
- for B25 and B26 recorders –
ETS16_FW_Updater_xx_x_OldBat.exe

Run the necessary program from your PC (If your operational system is Windows Vista, run this program "as an Administrator" and follow program's instructions. After the message «Press any key to exit» appears in the window, press any key to quit the program automatically.

Multilanguage Support

The RecManager program is available in both Russian and English. However, you can translate the button names, messages, and etc. into other languages. For this, edit EdicTiny16_rus.Ing and RecManager_rus.Ing (or EdicTiny16_eng.Ing and RecManager_eng.Ing) file in the following way:

1. In the first file line, change the number of the page code into the code of your language.
2. Translate all the messages and names from this file into your language and change them.
3. Rename EdicTiny 16_xxx.Ing and RecManager_xxx.Ing file (xxx- an abbreviation for the language).

After you run the program the next time, your language will be available.

If you want your language to be in the program installation, send the edited file to support@ts-market.com. The installation with your language support will be available on the TS-Market website.

Technical Support

Our engineers constantly work improving the software and documentation. You can always download the last version of the program from our website for free.

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