

OPERATION MANUAL for digital recorder of the Weeny and Dime series

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1. Purpose

Edic-mini Weeny Recorders are professional devices intended for making high quality record of voice messages into built-in flash memory. The recordings can be further uploaded onto the PC/tablet/smart phone and other devices supporting external carrier connection. The family includes small-sized voice recorders featuring one or two digital microphones and internal flash memory. The records have digital markers, which helps to prevent record from unauthorized changes, as well as significantly increase its evidentiality. In our new family of voice recorders, we radically changed not only the principle of control, making the Recorder available for almost any device, but also switched to completely new digital microphones, as well as to a new type of memory, opening up new opportunities in the desire to get maximum performance and reliability, at the smallest possible size.

2. Main technical characteristics

Signal-to-noise ratio	64dB
Dynamic range	90dB
Sampling rate	8, 16, 22 kHz
Frequency band	from 100 to 10 000Hz
Exchange rate	300 KB/s
Bit depth	16, 24 bit
Information carrier	Internal non-volatile memory

3. Main Features

- Audio data record in wav format
- Direct connection to the PC via external drive (flash drive)
- Built-in real time clock with calendar
- Low current consumption
- Timer to start recording at the preset time
- Voice Activation System (VAS)
- Password protection of the access to the Recorder's contents
- No way to change records' data of the internal memory of the Recorder
- Records' digital signature
- Status indication with one LED
- Two-button control
- Operational under wide temperature range, under the conditions of shaking or dust

4. Overlook

The recorders are intended for sound recording into built-in non-volatile memory represented by a regular disk (flash drive).

Depending on the model, the power is supplied by a built-in nondetachable rechargeable battery or a simple removable battery.

Recorder's control is performed using two separate buttons. One is Record On, the other is Record Off. That makes control process very easy. Except for the Dime models, where recording is enabled automatically when connecting the battery and terminated as the battery is disconnected.

The Recorder features built-in real-time clock with calendar, timers to automatically enable and stop recording at the preset time, VAS (Voice Activation System), indication of free memory capacity and battery charge level.

To view, playback, copy or delete records made, as well as to configure record modes and other Recorder's parameters, connect the Recorder to the PC. The PC recognizes the Recorder as a removable drive containing the recorded files and a configuration file.

The records in wav format are saved in the internal memory of the Recorder. Each record performed by the Recorder has a mark of time and date and supplied with 'digital signature' to identify the model of the Recorder to have performed the recording and the attempts to modify it after being uploaded onto the PC.

The Recorder features the option to configure record parameters, which helps the user to find a proper balance between recording quality and memory capacity used to store it.

To configure recording quality and other Recorder's parameters, use configuration file on the Recorder's drive. Its contents can be changed on the PC using any word processor.

The drive's contents can't be changed, except for deleting the files with records made by the user and changing configuration file. Thus the authenticity and inalterability of the stored records can be guaranteed.

The records saved in the Recorder's memory and its settings can be protected with user password.

5. Operating the Recorder

5.1 Battery Charging

(for models with rechargeable batteries)

Before using the Recorder, make sure the rechargeable battery is fully charged. If there is a necessity, charge the internal battery of the Recorder. To do this use interface cable from the delivery set to connect the device to the PC or power supply with regular USB output.

Charging process is accompanied by smooth lightening and attenuation of LED with an interval of 1 to 4 seconds, depending on the current battery charge level. The shorter the interval, the fuller battery charge level is. With battery fully charged, this interval decreases to zero. Full charging takes about 2.5 hours.

When charging is completed, disconnect the cable from the computer or charger.

Attention!!! Do not leave the Recorder connected to the cable after the charging has been completed.

5.2 Recording

To enable recording keep the START button pressed for about a second until the LED starts flashing (for Dime models just insert the battery into the Recorder). The LED flashes 3 times, and recording starts.

In case battery charge level is insufficient to perform recording, The Recorder makes 3 smooth fading flashes of LED and after that switches to Standby Mode.

If the internal memory of the Recorder is full and circular recording is off, the Recorder makes 3-fold LED flashes and goes to Standby Mode.

During recording, the LED is flashing in two series of flashes, the number of flashes in the first series indicating battery charge level and in the second series - free memory capacity, as shown in the following Table:

Number of flashes	Battery charge level (1st series)	Free memory capacity (2nd series)
1	80-100%	75-100%
2	20-80%	50-75%
3	2-20%	25-50%
4		1-25%

The interval between the first and second series of flashes is 4 seconds, and between the second and first 8 seconds.

To stop recording, keep the STOP button pressed until the LED lights continuously (for Dime models, disconnect the battery from the Recorder).

Recording also automatically stops when the battery is completely discharged or when the memory is full.

Recording can also be turned on / off automatically when the timers are activated. Enabling and setting of timers is described in the section 'Configuring the Recorder'.

5.3 Operating the Records

To playback, copy or delete records made, connect the Recorder to the PC using interface cable.

The Recorder is recognized in the PC as a removable media (flash drive), therefore, to view the Recorder's contents and for other actions, you can use the same tools as while working with any other drive, for example, Windows Explorer or any other file manager.

The Recorder's drive contains records in wav format and a config.ini configuration file with the settings of the Recorder.

The name of the wav file with the record is generated dynamically and has the following scheme: MODEL_DATE_TIME_MODE_SN.wav, where

- MODEL - recorder's model;
- DATE - date of recording in DD / MM / YYYY;
- TIME - time in HH: MM;
- MODE - record mode, consisting of three symbols:

The 1st character can be 'V' if the recording was made when voice activation system (VAS) was on, or 'N' for other cases;

The 2nd character can be 'M' for mono records or 'S' for stereo records

The 3rd character can be 'C' if the record was made when circular record mode was on, or 'L' for other cases;

- SN - recorder's serial number

To playback record, use standard ways to open the corresponding wav file by any media player, e.g. Windows Media Player.

To delete records off the Recorder, copy or move them to the PC or any other carrier, use Windows Explorer or any other file manager.

Any record stored in the Recorder's drive can be opened in sound editor, though all the modifications made will be ignored.

Changing or deleting other files (except for the settings file) on the Recorder's disk, as well as copying or creating new files on the Recorder, is also unavailable.

6. Configuring the Recorder and Records. Operating Configuration File

6.1 Setting the Recorder's Parameters

To configure the Recorder's parameters, set its internal clock and password, open config.ini in any word processor and set the desired parameters.

The Recorder's clock synchronizes automatically with the PC as the configuration file is saved.

6.2 Configuring Records' Parameters

The Recorder can apply various parameters to perform recording, which determines record's quality and size. The main quality parameters are sampling rate and sample width. The higher these parameters, the higher recording quality, but at the same time, the higher the amount of memory required for audio data storage, as well as the power consumption, which reduces maximum recording time.

Sampling rate is set by the SampleRate parameter of the configuration file. The value 0 corresponds to the frequency of 8 kHz, the value 1 to 16 kHz, the value 2 to 22 kHz.

Sample width is set by the SampleWidth parameter. The value 0 corresponds to 16 bits, the value 1 to 24 bits.

Compression method is specified by the Compression parameter. The value 0 corresponds to the mode without compression, the value 1 to ADPCM 4 bit, the value 2 to uLaw. When setting a compression method other than 0, sample width is set to be 16 bits, and sampling rate 8 KHz, regardless of the specified SampleWidth and SampleRate parameters values.

There is an option to adjust audio signal gain using GainLevel parameter. The value 1 corresponds to a minimum gain, the value 7 corresponds to a maximum gain.

6.3 Circular Recoding

Circular recording makes it possible to continue recording by deleting older record files after the Recorder's memory is full.

The parameter sets maximum file size in Mb. E.g., with CycleLength=100, while recording the Recorder will trace file size and as soon as wav file size is 100 Mb, recording will continue in a new file. If while recording the Recorder's memory is full, the oldest wav file will be deleted to continue recording in a new wav file.

6.4 Timer Recording

The Recorder provides the option to automatically start and stop recording at the preset time using Timer. The Timer has two modes of operation: Daily and Once. Daily Timer automatically starts and stops recording every day at the same preset time. Once Timer enables it to specify particular time and date to start and stop recording.

Timer mode is set as parameter. The value 0 corresponds to off timer, 1 - daily timer, 2 - once timer.

Time and date to start and stop recording is set in the parameters as DD/MM/YYYY HH:MM. With Daily Timer, values of date will be ignored, however any date must be specified any way.

For example, when setting parameters, the Timer will be enabled in daily mode at 23:00 and go off at 4:00 the next day, regardless of the current date. But when specifying the same parameters for once mode, i.e. `RecTimer=2; TimerStartDateTime=31.12.2019 23:00; TimerStopDateTime=03.01.2020 4:00`, recording will start 31.12.2019 at 23:00 and stop 03.01.2020 at 4:00.

Configuring timer, the Recorder's capabilities should be taken into account to provide enough memory space and power supply. If the Recorder's memory is full or battery charge level is too low, recording may be stopped halfway or not begin at all.

Timer recording can be stopped manually by keeping the STOP button pressed until the LED is continuously on.

6.5. Configuring VAS (Voice Activation System)

Voice Activation System (VAS) properly configured can significantly reduce both memory consumption and energy consumption from the power source.

VAS is enabled using `VasEnabled` parameter of the configuration file. The value 0 switches VAS off, the value 1 switches VAS on.

The principle of VAS is as follows: after the user enables recording, the Recorder starts recording and tracing signal from the microphone. If within the time specified in the settings (`VasDuration`) the level doesn't exceed specified threshold (VAS level), recording is paused until signal level exceeds threshold value. After that recording will be continued. During pauses the Recorder does not save sound data on the drive, which saves memory capacity and power consumption, which in the end helps to significantly increase overall record duration.

The disadvantage of this record mode is the absence of pauses in the resulting file, as well as information about their duration. The Recorder saves only audio data with signal level exceeding the predetermined threshold. Therefore the threshold value should be set most appropriately for those specific conditions in which recording is taking place, otherwise the desired result may not be achieved. For example, if the threshold is too high, silent speech can be recognized as silence and, accordingly, will not be saved, or, on the contrary, if the threshold is too low, the background noise around the Recorder will permanently exceed this threshold and recording will be on continuously, which will not lead to the expected effect of saving memory and energy.

6.6 Password Setting

Set password in order to protect against unauthorized access to the records and the Recorder's settings.

The password is specified in Password of the configuration file. Valid password length is restricted to contain 8 characters.

As the password is set, next time the Recorder is connected to the PC, the Recorder's drive will contain only the password.txt file.

To gain access to the Recorder's contents, open this file in a word processor and replace its contents with the previously set password, then save this file.

After that, the Recorder will automatically reconnect to the PC and the access to the records will be available until the Recorder is disconnected from the PC.

If the password is lost, there is an option to reset password and other settings followed by a complete memory clearing by entering 00000000 as the password.

Clearing the Recorder's Memory and Setting Factory Settings

Use ResetToFactoryState configuration file parameter to clear the Recorder's memory and set factory configuration. For clearing, set the value for this parameter as 183, then save the configuration file and reconnect the Recorder to the PC.

7. Clearing the Recorder's memory without connecting to the PC

If necessary, clearing the Recorder's memory and setting factory configuration can be performed without connecting to the PC. To do this, follow the steps: when the Recorder is in Standby mode, press the START button (similar to Record ON); then, while there is an indication of the start of recording (three flashes of LED), keep the STOP button pressed. In this case, the Recorder, instead of starting recording, will go to memory clearing mode, and that will be indicated by three long flashes of LED with pauses between them (the duration of the light and pause is about 3 seconds). To clear memory, keep the STOP button pressed while the LED is on and release it when the LED is off, i.e. the LED is on - quickly hold the STOP button, the LED goes off - immediately release the button.

8. Records' Integrity Check

The records made by the Recorder contain additional information on the Recorder's model and when the record was made, allowing it to check whether the record has been modified after uploading it from the Recorder.

To view this information, use WeenyReclInfo program. After starting, click on the "Select record ..." button and select the required wav-file, after that the program will display a message with information on this record.