

## MK-143B Record 8 Sounds! 680 Seconds Voice Recorder With Microphone/Line In Kit

MYCOMKITS.COM's "MK-143B Record 8 Sounds! 680 Seconds Voice Recorder With Microphone/Line In Kit" is 680-second voice recorder kit with microphone/line inputs uses an APR33 chip that allows 680 seconds of up to eight types of sounds to be recorded at a sampling frequency of 12kHz and be played.

The APR33 (by APLUS) is an IC that allows up to 680 seconds of up to eight different types of sounds (music/messages) to be recorded and played. The sampling frequency (the time interval when sounds are converted into digital data and shown as a frequency) is 12kHz. Therefore, The sound quality is better than that of phone conversations (8kHz) and the volume is higher than that of our conventional products (MK-108, MK-131, etc.).

Recordings are stored in on-chip Flash memory, providing non-volatile storage when power is removed.

MYCOMKITS.COM's "MK-143B Record 8 Sounds! 680 Seconds Voice Recorder With Microphone/Line In Kit" can be used to record and play one, two, four, or eight types of sounds by using the two slide switches on the board. The IC, board, and play button are all compact and thin so the device can be fitted into a picture book, used to record sounds of animals or monsters, and turn your picture book into one that plays sounds with just a few simple modifications. Note: modifications such as with an electrolytic capacitor, bipolar terminal block, changes with the LED, and use of button cells are needed to make the device even thinner.

### SPECIFICATIONS & FEATURES:

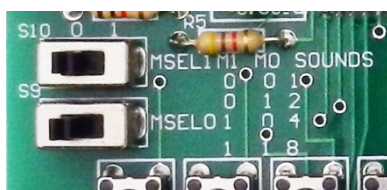
- Supply Voltage** DC+4V to 6.5V
- Consumption Current** About 40mA (record/play), about 15uA (idle)
- Sampling Frequency** 12kHz (cannot be changed)
- Number of Record/Play** 1, 2, 4, or 8  
(can be changed with the S9, S10 slide switches)
- Message Length** Approx. 680 seconds in total  
(This is a TOTAL count. In other words, about 680 seconds of a single recording can be made and 8 recordings of approximately 80 seconds each can be made.)  
**Input** Line inputs with the included electret condenser microphone or 3.5mm monaural mini jack connector. **Note: Two types of inputs result in mixed recordings. Make your recordings in a quiet location or remove the microphone when using line inputs.**
- Output** Direct drive 8 ohm speaker (built-in amp)
- Visual Indicator** Onboard LED  
Lit up during recordings/playing

### How to use:

**Power connection:** Connect a +4V to +6.5V DC power source (three or four AA dry cell batteries, 5V output AC adapter, etc.) to a J3 terminal block.

**Speaker connection:** Connect an 8Ω speaker to a J2 terminal block.

**Recording/playback count setting:** Settings can be made by setting two slide switches (S10, S9) of 1, 2, 4, or 8 types to the 0 side or 1 side (see right photo). **(Note! Always make settings**



**with the power off when switching the recording/playback count. The condition of the slide switches is detected when the power is off.)**

Record/Playback Count	MSEL1(S10)	MSEL0(S9)
1	0	0
2	0	1
4	1	0
8	1	1

Note: When recording, use only button S1 for recording/playing. When recording two types of sounds, use buttons S1 and S2 for recording/playing. When recording four types of sounds, use all from S1 to S4, and all buttons when recording eight types.

**Power on:** Slide the slide switch S14 to ON. Sounds can now be recorded and played.

**Recording with the on-board microphone:** Face towards the on-board microphone and record as you speak.

**Recording with a line input via PC:** Record by connecting the speaker (headphone) output of a music player, PC, etc. to the line input. **(Note: Sounds are recorded through the left channel when using a 3.5mm stereo cable for line inputs.)**

**Recording:** Slide the S11 slide switch (photo on the right) to the REC side and press from the S1 button an arbitrary switch to select from among the 8 choices in S8. The LED will light up after about 1 second. When you speak into the microphone (input a sound when using a line input), the device will record the whole time the switch is pressed. **Note: Recording and playing can be done for up to 680 seconds (standard).**



**Therefore, about 8 recordings of about 80 seconds each, 4 recordings of about 160 seconds each, and 2 recordings of about 340 seconds each can be made.**

**Playing:** Slide the S11 slide switch to the PLAY side and press from the S1 button an arbitrary switch to select from among the 8 choices in S8 (the number of switches depends on the number of recordings and playbacks). The LED will light up after about 1 second. The recorded sound corresponding to the switch will be played. The LED is lit during playback. **(Note: The playback will stop when the PLAY switch is pressed again. The playback repeats as long as the PLAY switch is being pressed.)**

### Assembly:

Check to see if all of the parts in the parts list are included before assembly. Refer to the fabrication side (color) of the product page during fabrication.

It is generally easiest to solder the lowest height components first - the resistors, and diode. Next, start soldering the taller parts (in order of the 0.1uF capacitor, polar capacitor, LED, monaural jack, and terminal block). Note the poles of polar parts when soldering them. Align the cathode (flat part or shorter lead) of the LED with the flat line of the PCB legend and solder them together. The APR33 recording/playing IC (surface mounting type IC) is already soldered directly onto the print-circuit board so no attaching is needed. **Note: The soldering iron has a narrow tip with a temperature control feature for electrical components. Therefore, high temperatures (400°C and above) should not be applied to the surface-mounted IC. Refer to the "Convenient notes for electrical work" on the website for details on how to attach components, how to view PCB silk printings, how to interpret resistance values, and so on.**

### What To Do If It Does Not Work

Poor soldering is the most likely reason. Check all solder joints carefully under a good light. Check that all components are in their correct position on the PCB.

**CONTACT DETAILS**

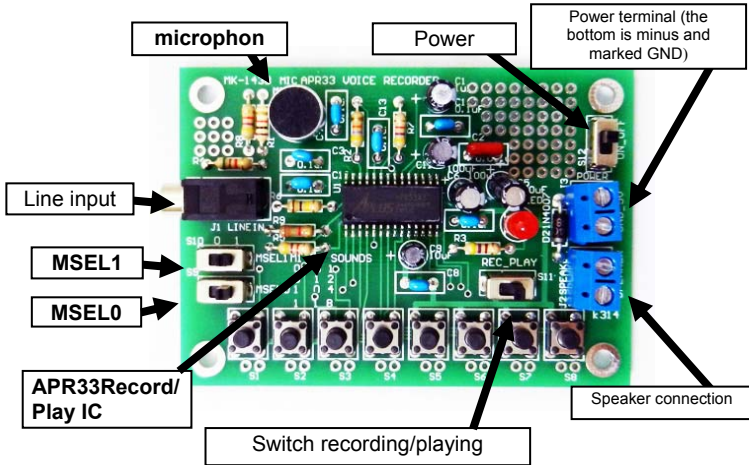
The datasheet for the APR33 recording/playing IC by APLUS INTEGRATED CIRCUITS INC. (Taiwan) can be downloaded from the website below (the page may change without notice).

<http://www.aplusinc.com.tw/pro-recording.htm>

Access the following MYCOMKITS.com website below for related detailed documents.

<http://www.mycomkits.com>

Contact us at the email address below if you have any questions. [support@mycomkits.com](mailto:support@mycomkits.com)



**Parts List-MK-143B**

**Resistor (5%, 1/4W)**

1K (brown, black, red) R1	1
47K (yellow, purple, orange) R2	1
470R (yellow, purple, brown) R3	1
5.1K (green, brown, red) R4	1
4.7K (yellow, purple, orange) R5,7,8	3
100K (brown, black, yellow) R6	1
1.5K (brown, green, red) R9	1

**Capacitor**

1uF polar C1	1
1nF (0.001uF, 102) non-polar C2	1
100nF (0.1uF, 104) non-polar C3, 4, 7, 8, 10, 12, 14	7
100uF polar C5, 6, 11	3
10uF polar C9	1

**Semiconductors**

APR33 recording/playing IC (mounted on the board) U1	1
LED D1	1
1N4007 diode D2	1

**Other**

Condenser microphone M1	1
Push button switch S1,2,3,4,5,6,7,8	8
Slide switches S9,10,11,12	4
3.5mmmonaural jack connector J1	1
Terminal block (bipolar screw terminal) J2,3	2
MK-143B PCB (K314) (size: approx. 82x58mm)	1

