

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. Both the IC, the board and the pushbutton switch for playback are small and thin, so if you make a little remodeling, you can incorporate it into a picture book and record the voice of animals and monsters, and you may be able to make the original "picture book that produces sound". (Note: In order to further thinner it is necessary to devise measures such as electrolytic capacitor, 2 pole terminal block, LED change and button battery)

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 amplifier)

Visual Indicator Onboard LED
Lit up during recordings/playing

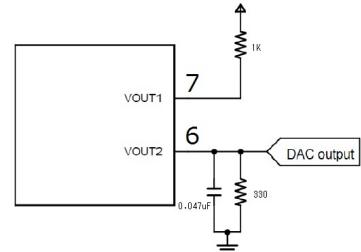
How to Use:

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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.

Note (important): When connecting the amplifier to the output, connect only the VOUT 2 terminal (pin 6) to the amplifier and connect the ground of the amplifier to be connected to the ground (minus terminal of the power supply) of the MK-143B. (See the right drawing)

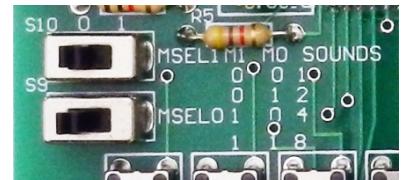


Connect it to Amplifier). Absolutely, please do not connect two speaker terminals directly to the amplifier input Recording playback IC "APR 33" will be broken. Furthermore, the speaker output (VOUT 1, 7 pin) to which the amplifier is not connected is pulled up to the power source with a resistance of 1 K ohm (or 1.2 K ohm), and the speaker output (VOUT 2) connected with the amplifier is connected to the ground Please install 330 ohms and a capacitor of around 0.047uF (oscillation suppression).

Recording/playback count setting switch settings:

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/Play No	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 included microphone: Face towards the included 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.

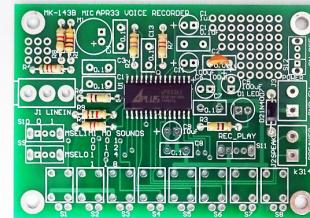
Note: Although the C10, C11 capacitors are listed on the circuit diagram, they are not connected on the printed circuit board.

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.

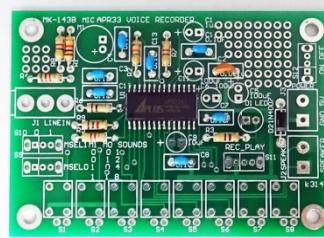
-Solder resistors and diodes:

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Note: The diode has polarity (direction). A line is printed on the element (minus side) and a line is also present in the figure of the diode on the printed circuit board, so make a match and solder it.

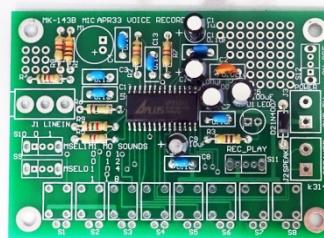


-Mount ceramic capacitor



-Mount polar capacitor

NOTE: Polar capacitor has polarity. Long lead wire is positive. "+" Is printed on the printed circuit board. Please insert a long lead wire into a round solder land with a long positive side and solder it.



-Mount LED, condenser microphone, slide switch

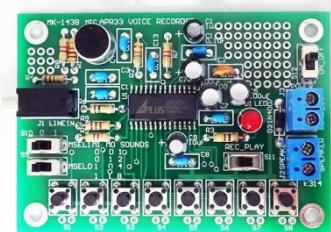
Note: LED has polarity (direction). The long lead is the anode (A, plus) and the short lead is the cathode (K, minus). Please pay attention to polarity. The form of the solder land for anodes is round, and the solder land for cathode is square. Slide switch has no polarity.



-Mount tactile switches



-Mount terminal block (screw type terminal) and monaural jack



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).

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

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

<https://www.mycomkits.com>

Contact us at the email address below if you have any questions. support@mycomkits.com

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Parts List—MK-143B

Resistance (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
3.5mm monaural jack connector J1	1
Terminal block (bipolar screw terminal) J2,3	2
MK-143B print-circuit board (K314) (size: approx. 82 × 58mm)	1

