

MYCOMKITS.COM's "MK-137B Change Your Voice to Robot, Lady, Gentleman Voice! With Microphone, Line-In, Amplifier, Voice Changer Kit" is a voice changer kit which uses sound modulator HT8950 chips of Holtek. HT8950 is voice frequency conversion IC which built in the amplifier for microphones. This raises the frequency of the sound inputted from an attached microphone or line-in into 4/3 time, 8/5 time, and twice, or lowers it into 8/9 time, 4/5 time, and 2/3 time conversely. This can change the sound of your voice and PC, or an electronic instrument into high voice or low voice. Furthermore, this can change your voice also into a robot's voice. Moreover, this can make a pleasant effect from shaking ± 8 Hz of each sound during playing by a vibrato function.

Therefore, you can include this in a stuffed-animal suit, a doll, or a robot, you can utter pleasant voice, you can connect with electronic instruments, such as an electric guitar, using line-in, or you can put it in voice generating equipment and use this.

Note: A power supply and a speaker are not attached to a kit. Prepare separately by yourself.

SPECIFICATIONS & FEATURES:

Supply Voltage From DC6V to 12V (Notes: neither a battery cell nor an electric power supply is attached.) Prepare separately by yourself.)

Sampling Frequency 8 kHz

Vibrato function ± 8 -Hz vibrato function built-in

Frequency modulation You can adjust three steps at a time up and down and Normal. 4/3, 8/5, 2, 1, 8/9, 4/5, 2/3 times. (Set up with a push-button switch or a DIP switch)

AD, DA converter 8-bit AD, DA converter built-in.

Excessive input display LED When input volume is large, it lights up. (When the light is switched on, distortion and an oscillation may occur)

Switches for Setup Set up modulation frequency with four push-button switches and one DIP switch

Input (two types) Condenser microphone Change it with a slide switch. 2. Line-in (terminal block)

Output It can drive 8ohms of output speaker directly (about 1W) (Amplifier built-in by LM386. Since distortion becomes large although a gain can be chosen 200

times, always use it with 20 times.)(Note: a speaker is not attached in this product.) We recommend to use beyond 2W speaker to get better sound)

How to Use:

Connect Power Supply: Connect the battery or DC power supply of +6V to +12V to the terminal block (screw type terminal) J2 or the DC jack J1. When you use DC jack, use a plug that has 2.1mm shaft diameter with positive voltage and 5.5m outside diameter. (Notes: A power supply is not included in a product).

Connect speaker: Connect an 8-ohm speaker to the terminal block J5. (Notes: A speaker is not included in a product).

Setting for conversion frequency-setting switch:

DIP switch S2 (use three of four switches)

SW2	SW1	SW0	Behavior	Modulation Degree
1	1	1	Push switch, TGU, TDG, ROBOT Available	Refer to Note
1	1	0	UP 3	X 2
1	0	1	UP 2	X 8/5
1	0	0	UP 1	X 4/3
0	1	1	Normal	X 1
0	1	0	Down 1	X 8/9
0	0	1	Down 2	X 4/5
0	0	0	Down 3	X 2/3

Set to the frequency which wishes SW0 of DIP switch S2, SW1, and SW2 according to the following table. When a switch is OFF, it means "1". "0" (zero) means ON. (One of four switches is a to be determined). If a power supply is turned ON with all "1", it will become ROBOT mode.

Push-button switches S4 and S5 (They are available only when all DIP switches are "1") : You can raise frequency by push-button switch UPWARD (S5) from lowest frequency for every step. On the contrary, you can lower frequency for every step from the highest frequency by DOWNWARD (S4).

Push-button switch S3 (available, only when all DIP switches are "1"): It changes your voice into a robot's voice by push-button switch ROBOT (S3). When the whole of SW2/1/0 is 1 turning ON, it becomes ROBOT sound automatically.

Push-button switch S6: If push-button switch VIBRATO (S6) is pushed, it will shake ± 8 Hz of the present frequency.

Notes: Only when DIP switch S2 is all OFF state (all 1). UPWARD, DOWNWARD, and a ROBOT switch are effective (refer to the table).

Power on: Slide the slide switch S1 to ON. The sound inputted from a microphone or line-in is modulated, and it is outputted from a speaker.

Input change: Choose whether you use an attached microphone or line-in with the slide switch S7.

Line-in connection: When using line-in, connect the output of PC or an electronic device, etc. Be cautious about the polarity. Connect the ground of PC and an electronic device with one signal wire (printed on the board).

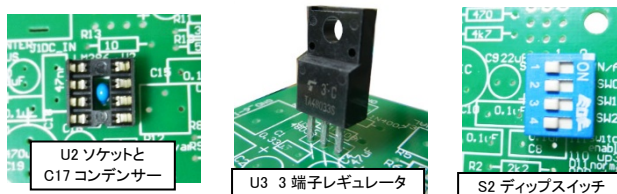
Note: If input volume is large, excessive input display LED may light up, and distortion and an oscillation (high noise sound) may occur. When it oscillates, turn OFF a power supply, and turn ON a power supply again. In the case of high tone and low tone, regardless of input volume, distortion may occur. When the microphone receives the sound of the speaker, the phenomenon "howling" such as "gaaa peep" occurs. Use it so that the sound of a speaker does not go into a microphone by any means. A noise may occur in line-in.

Assembly:

Check to see if all of the parts in the parts list are included before assembly. Solder the lowest height components first. Then add the taller components. Solder a resistor and a diode first, then a switch and IC socket, then a capacitors. **Note: Mount the capacitor C17 in IC "U2" socket. Mount it before soldering IC socket.** Be careful to solder polar parts (diode, electrolytic capacitor, LED, transistor, 3 terminal regulator) that they have polarity and direction. **Note: Since C12 is not polar although they are electrolytic capacitors, you can disregard polar printing on a printed circuit board, and mount them at any direction. The plus side of C4 is a terminal near U3.** Align the cathode (flat part or shorter lead) of the LED with the flat line of the PCB legend and solder them together. Mount all the parts according to white printing (silk print) on a printed circuit board fundamentally. Don't solder IC directly, but solder IC socket, and insert IC in it. Although two kinds of connectors, J1 and J2, are attached as a connector for power supplies, you should attach only one of them which you will use it in order to prevent connecting an accidentally different power supply simultaneously. You can use a microphone on a board, attaching it directly. Or you can use it, attaching via a vinyl wire (however, when you use 15 cm length or more, use a shielded wire to reduce noise). **If you attach a jumper pin (not included) to the J4 pin header, the gain will be 200**

times but since the distortion will increase, please do not install. (J4 pin header, C16 condenser, pin socket for 200 times gain is not included) 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.

Refer to the following photo for assembly.



Notice on use (important):

If the sound from a speaker goes into a microphone, a howling phenomenon (oscillation) will occur (big annoying sound). **When especially the gain of amplifier is large, be careful.**

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 US

The data sheet of HT8950 made from HOLTEK (Taiwan) is downloadable from the following web sites.

<http://www.holtek.com/english/docum/consumer/8950.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

Parts List-MK-137B

Resistors (5%, 1/4W)	
2.2kΩ (red, red, red) R1	2
470R (yellow, purple, brown) R3	1
4.7K (yellow, purple, orange) R4,8	1
51K (green, brown, orange) R5	1
22K (red, red, orange) R6	1
33k (orange, orange, orange) R7, 11	2
100k (brown, black, yellow) R8	1
47K (yellow, purple, orange) R9	15
10 (green, brown, brown) R10	1
10 (brown, black, black) R13	1

Capacitor	
0.33uF (334) C1	1
100uF polar C2, 20	2
0.1uF(100nF, 104) C3, 5, 6, 7, 8, 10, 13, 15, 21	9
47uF polar C4	1
22uF polar C9	1
33nF (0.033uF, 333) C11	2.2
uF non polar C12.....	1
4.7uF polar C14.....	1
0.1uF (100nF, 104, Note: 2.5mm spacing) C17.....	1
47nF (0.047uF, 473) C18.....	1
470uF polar C19	1
Semiconductors	
1N4007 diode D1, 2	2
LED D3	1
Sound Modulator IC HT8950 U1	1
OP Amp IC LM386 U2.....	1
Voltage Regulator TA48033 (or equivalent) U3.....	1
Other	
10kΩ semifixed pot R12.....	1
Condenser microphone M1	Sli
de Switch S1, 7.....	2
DIP Switch (4 circuit) S2	1
Tactile Switch (Push Switch) S3, 4, 5, 6	4
IC socket 18pin (for U1).....	1
IC socket 8pin (for U2)	1
DC jack connector J1	1
Terminal block (bipolar) Screw Terminal) J2, 3, 5.....	3
MK-137B print-circuit board (K314) (size: approx. 73.4 × 73mm).....	1

Note: Mount the capacitor C17 in IC "U2" socket. Mount it before soldering IC socket.

Since C12 and C16 has no polarity although they are electrolytic capacitors, you can disregard polar printing on a printed circuit board, and mount them at any direction.

J4 connector, C16 condenser, jumper pins are printed on the board but their parts are not included. When installing it, the gain becomes 200 times, but please do not install as distortion becomes large. There are cases where they are incorrectly attached.

