FUTURE KIT

HIGH QUALITY ELECTRONIC KITS

DUAL STATION INTERCOM&DOOR BELL
CODE 326

LEVEL 1

This circuit device is a mini communication tool, well known to be used at home, with a microphone which is connected to a loudspeaker to another room.

Technical specifications:

- power supply : 6-12VDC.
- consumption : 40mA (talking), 182mA (push SW tone)
- there is the calling tone.
- max. length of shielded cable : 50m.
- PCB dimensions : 2.73 x 2.03 inches. (big board)
   1.15 x 0.76 inches. (small board)

How to works:

This circuit is devided into two circuit; conversation circuit and calling tone circuit. The conversation section, when push and hold switch SW2 ("1" position), SP1 is microphone and SP2 is speaker. Voice signal is fed to the base of TR4 (pre-amplifier) through switch SW2 for first amplify signal. The signal from the collector of TR4 is fed to pin 3 of IC1 to amplify signal again and drive to speaker SP2. But if don't push switch SW2 ("2" position), the operate will alternate to SP1 is speaker and SP2 is microphone.

The calling tone section, while don't push switch SW2 ("2" position), if push switch SW1, TR4 isn't working, causing TR3 and TR5 isn't working. The voltage from power supply is fed to the tone frequency generator (TR1 and TR2) through R4, the tone frequency generator is created frequency and send to pin 3 of IC1 for amplify and drive to speaker SP1. The frequency of the tone is set by the value R13, R14, C6 and C7

PCB assembly:

Shown in Figure 3 is the assembled PCB. Starting with the lowest height components first, taking care not to short any tracks or touch the edge connector with solder. Some tracks run under components, and care should be taken not to short out these tracks. All components with axial leads should be carefully bent to fit the position on the PCB and then soldered into place. Make sure that the electrolytic capacitors are inserted the correct way around. The LED has a flat spot on the body which lines up with the line on the overlay. Now check that you really did mount them all the right way round!

Testing:

Connect the power supply to circuit. Push and hold switch SW1 on the small board, you will hear "BEEP" tone from speaker SP1, and release switch SW1. Speaking into speaker SP2, you will hear your voice from speaker SP1. Push and hold switch SW2 on the big board to "1" position. Speaking into speaker SP1, you will hear your voice from speaker SP2.

Figure 1. Installing the componants

RESISTOR
R .....Ω

SW — TACTILE SWITCH

CARAMIC CAPACITOR
C .....µF

TRANSISTOR
B C / NPN / E   B E / PNP / C

JUMPER
— OR — J —

ELECTROLYTIC CAPACITOR
C .....µF
Watch the polarity!

MYLAR CAPACITOR
C .....µF

IC
Watch the position of the notch!

LED
A ▷| K   LED

DIODE
K ◁| A   D / K ◁| A

Troubleshooting:

The most problem like the fault soldering. Check all the soldering joint suspicious. If you discover the short track or the short soldering joint, re-solder at that point and check other the soldering joint. Check the position of all component on the PCB. See that there are no components missing or inserted in the wrong places. Make sure that all the polarised components have been soldered the right way round.
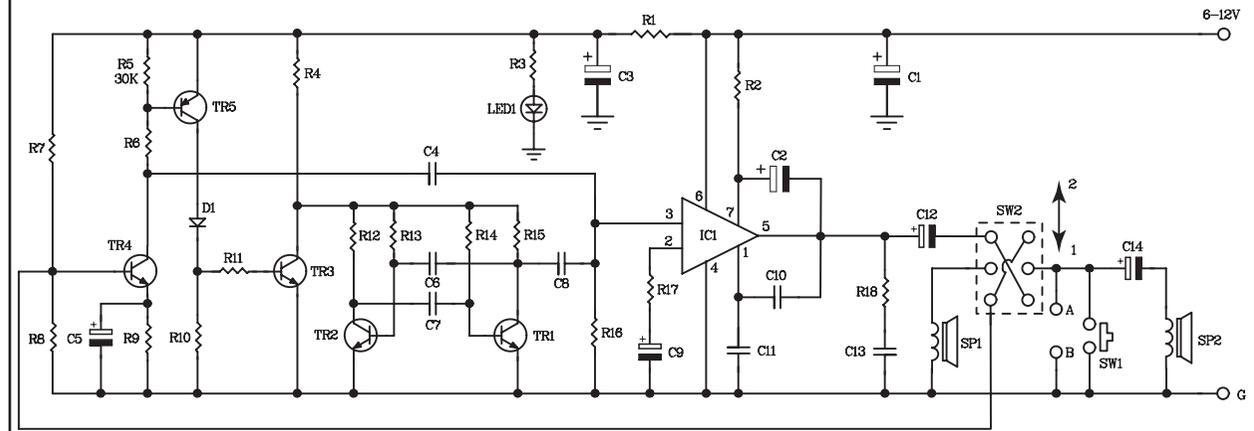
Figure 2. The dual station intercom&door bell circuit

Figure 3. Connections

SHIELDED CABLE NOT MORE THAN 50m. (LENGTH)

FK326-2

SPEAKER 2
8 Ω 0.25W

SPEAKER 1
8 Ω 0.25W

6-12VDC

FK326-1

speak 1 / 2
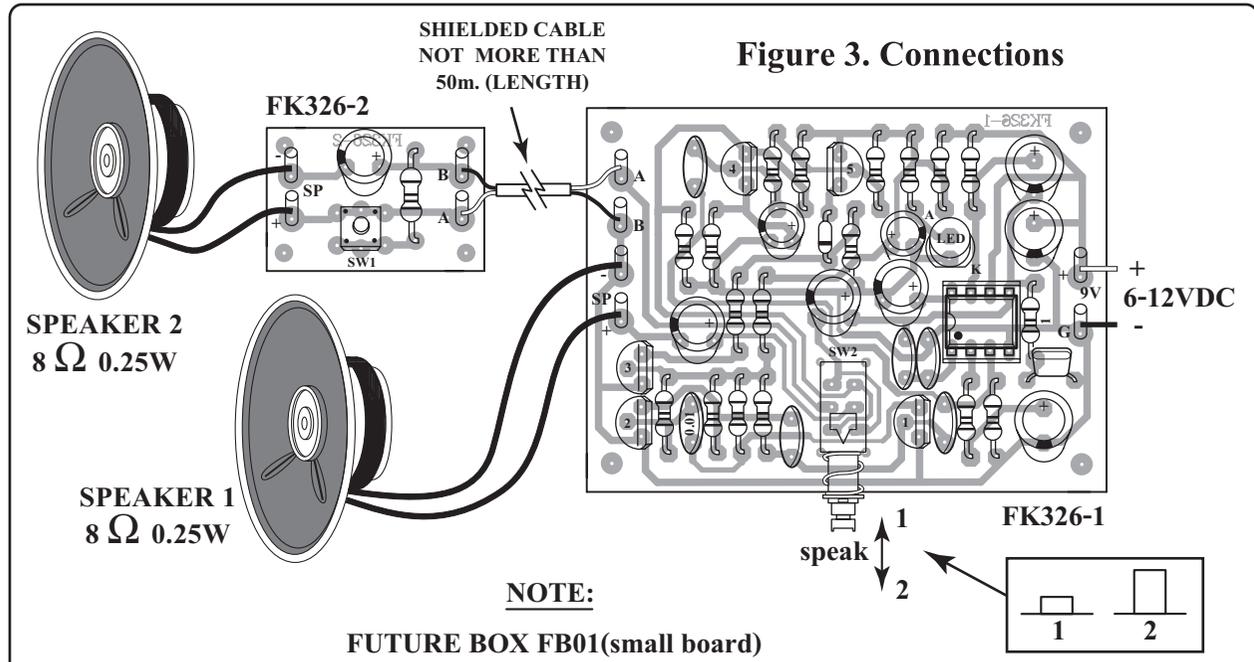
NOTE:
FUTURE BOX FB01(small board)
and FB03(big board) is suitable for this kit.
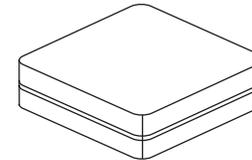
NOTE:
FUTURE BOX FB01 is suitable for small board.
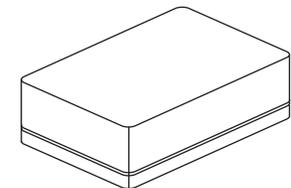
NOTE:
FUTURE BOX FB03 is suitable for big board.