FUTURE KIT

HIGH QUALITY ELECTRONIC KITS

FUTURE KIT

DIGITAL DC VOLTMETER
CODE 924

LEVEL 2

The digital direct current volt meter device is used for measure the direct voltage at maximum 1,000 volts.

Technical specifications:

- power supply : 7 to 15VDC.
- consumption : 120mA max. @ 12VDC.
- PCB dimensions : 2.66 x 2.70 inches. (big board)
  2.66 x 1.01 inches. (display board)

How to works:

As illustrated in figure 2 that IC1 functions to measure and convert the frequency. The pin 36 is available for adjustment of accurate. The pin 3 is the input connected through the voltage divider set. The divider consists of 2 sets; "IN2" point is for measurement of direct current at 0-199 volts and the other is for the voltage at 0-1,000 volts. TR1 and TR2 receive the signal from the pin 38 to generate current transmitted to the pin 26. IC 7805 rectifies the voltage distributed to IC1.

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. If the pins will not enter the holes with ease, use a small drill to slightly enlarge the opening. 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. Some components are particularly sensitive to heat (ie: Transistors, IC's, diodes etc.) extra care must be taken to only apply the iron for as little time as possible, using a pair of pliers to grip the leads will help conduct heat away. Trim components leads with wire cutters to prevent excess lengths causing a short circuit. Now check that you really did mount them all the right way round!

Testing:

Connect the two point before insert LED segment into the imprinted connected pattern. Upon completion of the assembly check to ensure that it is in order many times. After that provide the accurate voltmeter, the direct current at 20-50 volts and power supply at 7.5-15 volts to test the circuit as following:

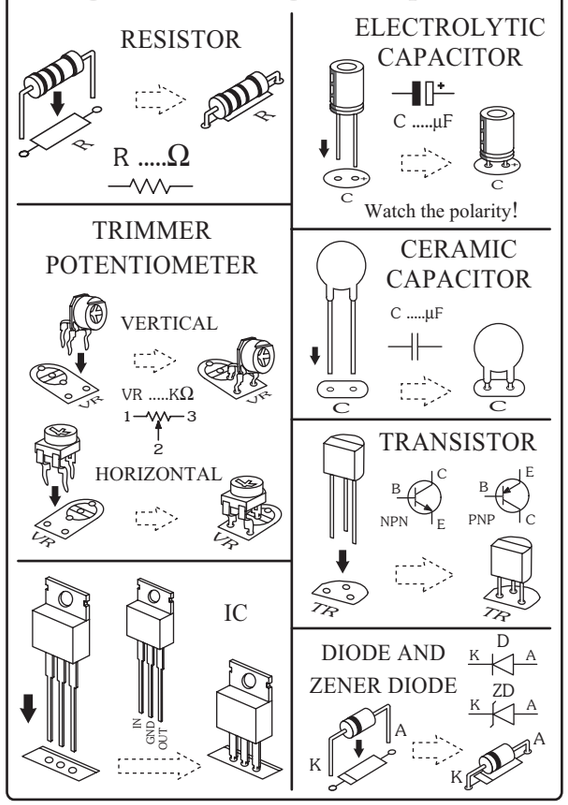
1.Connect the current at 7.5-15 volts to positive pole and negative pole. The display will show the result.

2.Connect the voltage at 20-50 volts at IN1, G or IN2, G which one to be measured.

3.Check the value of voltmeter compare with the display. If they are different, adjust VR1K until they are similar. Then adjust VR 100 ohm till they are the same.

Supposing the result of measurement are the same, this means it is practical. Higher volt is more accurate.

Figure 1. Installing the componants



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.

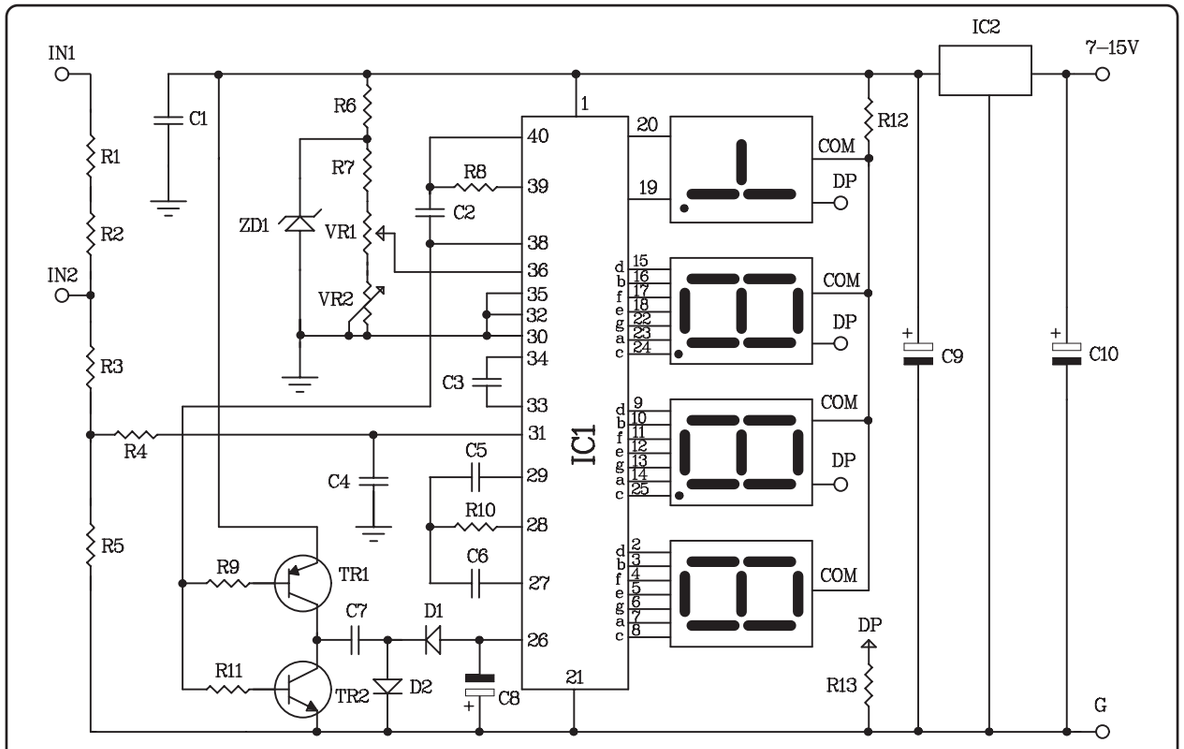


Figure 2. The digital DC voltmeter circuit

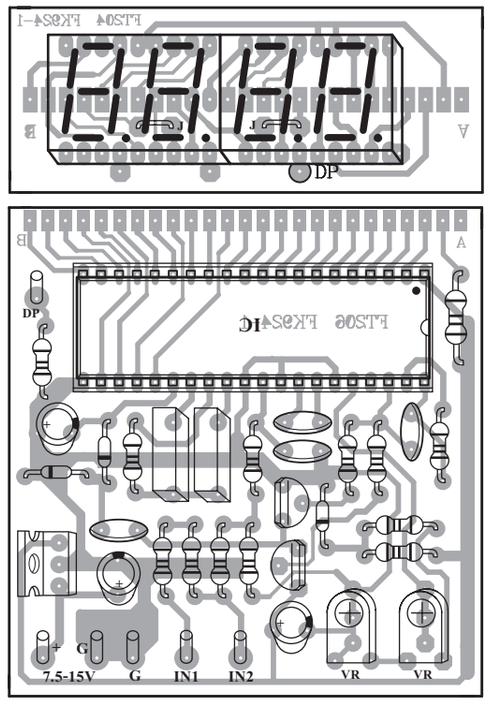
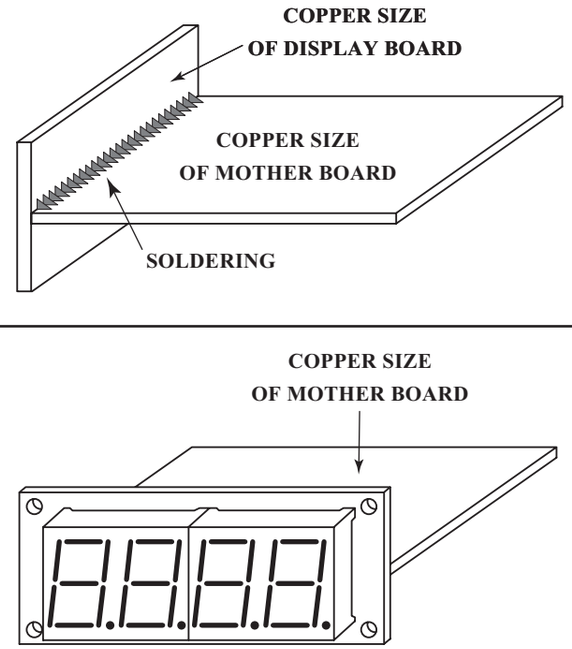


Figure 3. Connections FK924-1



NOTE: FUTURE BOX FB06 is suitable for this kit.