

SIMPLE LUX METER

CODE 912

LEVEL 1

This circuit is a light measurement circuit. It is used for measuring the intensity of light. 5 LED's is a scale of light level. Trimmer Potentiometer is used for adjusted sensitivity of photo-transistor for suitable that place.

Technical specifications:

- power supply : 9VDC.
- consumption : 25mA.
- light sensitivity : adjustable by trimmer potentiometer.
- PCB dimensions : 1.92 x 1.16 inches.

How to works:

Photo-transistor is a sensor of light. When photo-transistor detects the light a little bit, the internal resistance of photo-transistor will has higher resistance, causing TR1 isn't working. The voltage at R2 is lower, LED1 is lighted on only and the other LED is lighted off because LED1 isn't connected with diode. Normally, the voltage drop at diode is approximately 0.7 volt. If connect diode is series circuit, the voltage drop at diode is higher. In case of the emitter of TR1 has the high voltage, all LED will be lighted on. If photo-transistor detects the fully light, the internal resistance of photo-transistor is lighted on. But if photo-transistor detects a middle light, LED1, 2 and 3 are lighted on and LED4, 5 are lighted off.

PCB assembly:

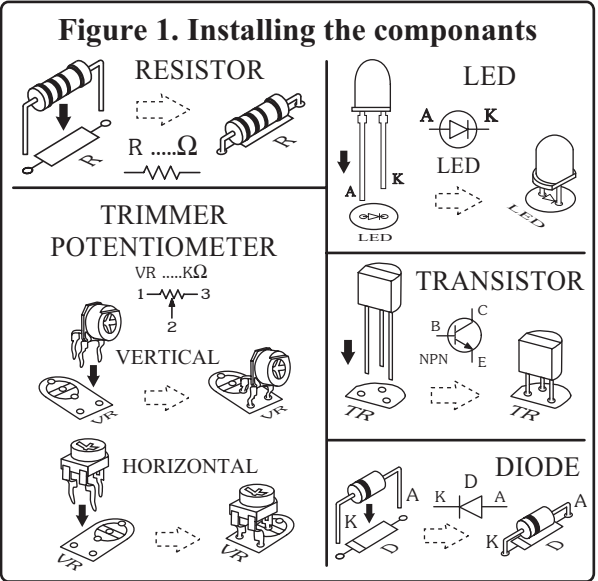
Shown in Figure 3 is the assembled PCB. Starting with the lowest height components first, taking care not to short any tracks or touch the edge connector with solder. Some tracks run under components, and care should be taken not to short out these tracks. If the pins will not enter the holes with ease, 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!

For photo-transistor, you have to installing external PC-board for detect the light. Adjusting the trimmer potentiometer to suitable the place.

Testing:

Connect the power supply 9 volts to the circuit. Adjust potentiometer max. counterclockwise. Put the dark pipe to photo-transistor for protect the light of side view. Turn photo-transistor to the light at you want to measurement, LED will be lighted on to light level.



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.

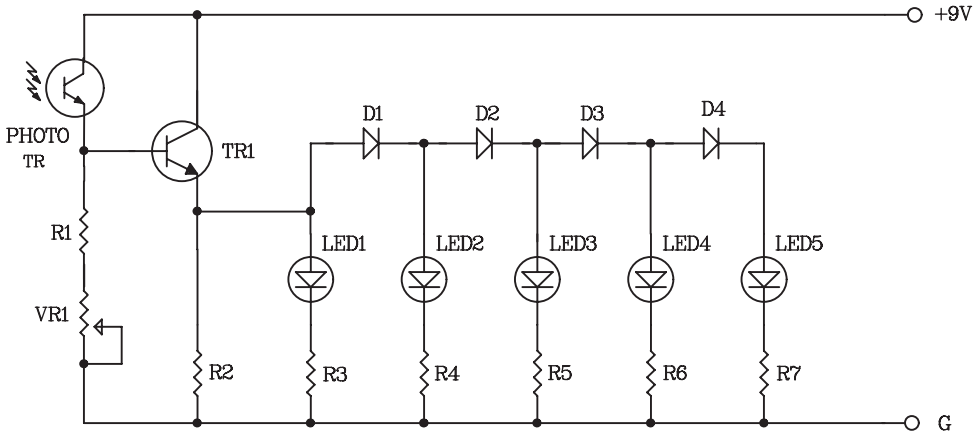
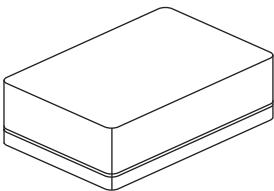
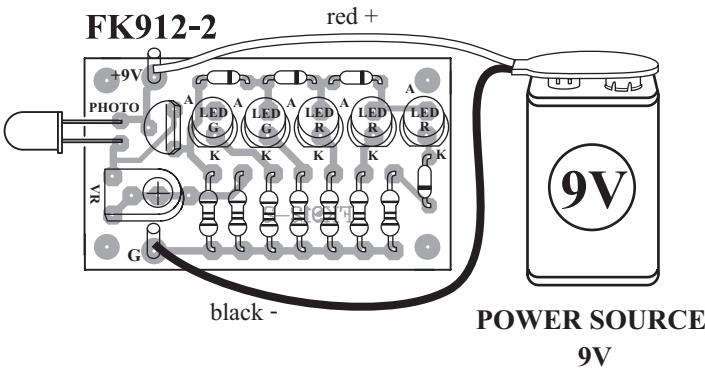


Figure 2. The simple lux meter circuit

Figure 3. Connections



NOTE:

FUTURE BOX FB03 is suitable for this kit.

NEW KIT SET 

CODE FK	DESCRIPTION	POWER
168	NO SMOKING FLASHER 46 LED	9-12VDC.
169	DANCING ROBOT FLASHER 33 LED	9-12VDC.
170	DANGER FLASHER 42 LED	9-12VDC.
171	TWO LAMP FLASHER	3VDC.
172	THREE STEP FLASHER 19 LED	9-12VDC.
173	HALLOWEEN PUMPKIN FLASHER 23 LED	9-12VDC.
174	ANIMATED LED SIGNBOARD (5x7 DOT MATRIX)	3-5VDC.
816	VARIABLE REGULATOR 0-50V. 3A.	50VDC.
817	TRANSFORMERLESS POWER SUPPLY 6-9-12V 50mA	220-240VAC.