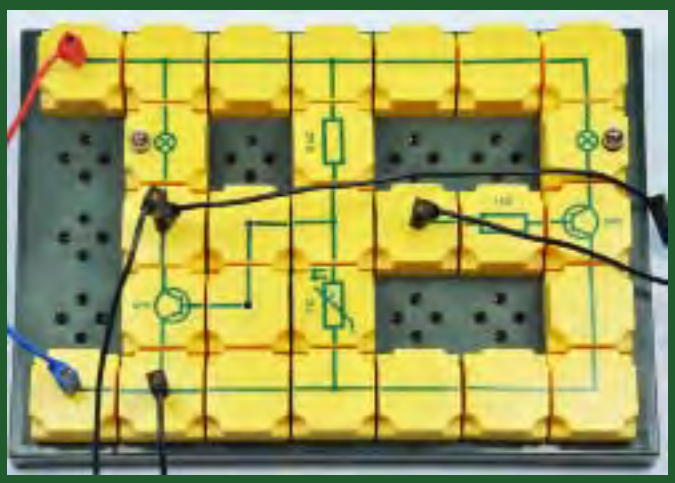
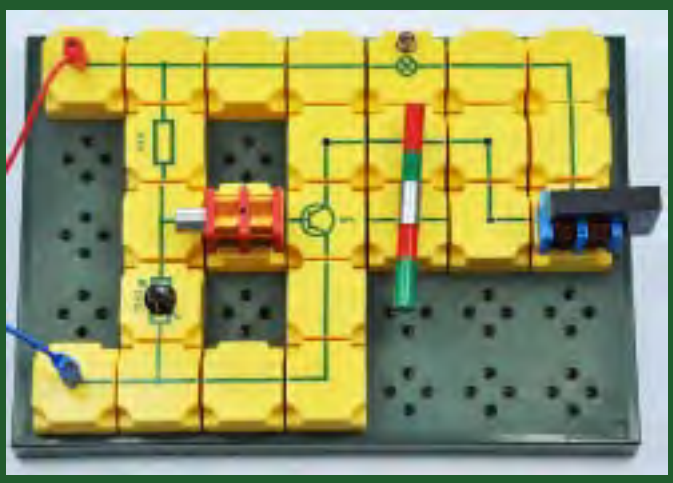
Student Experiments

Manual

ELECTRONICS

P9160-4F





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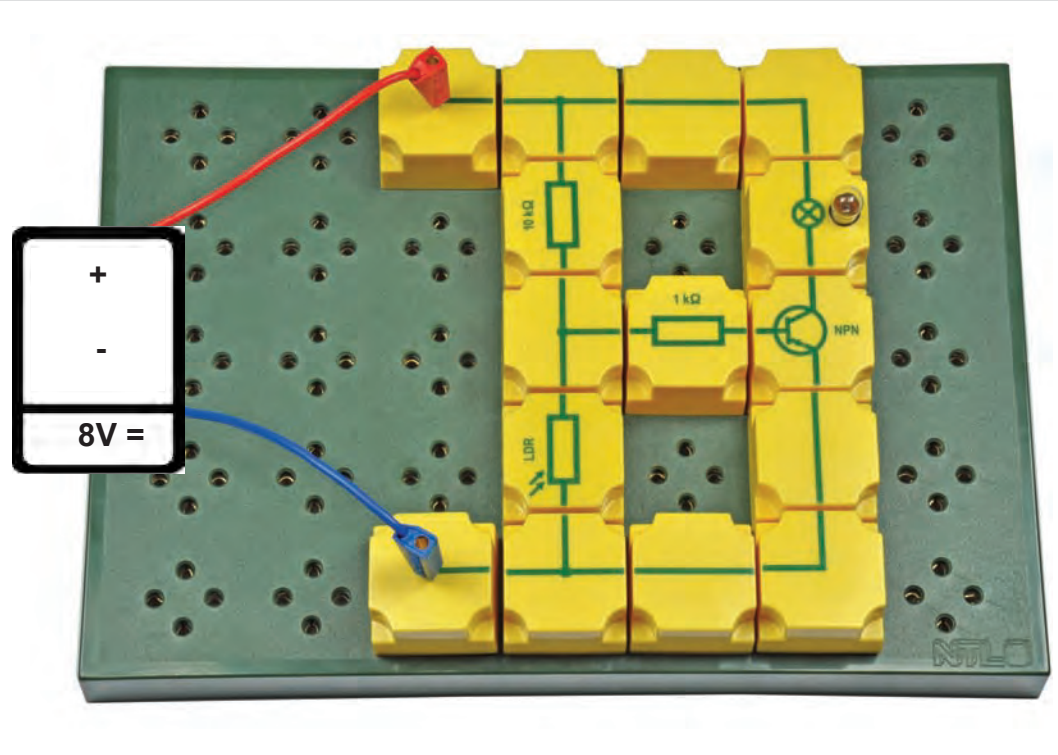
INDEX

INDEX

Required Kit:
P9901-4D Electricity 1
P9901-4F Electronics supplement



Material:
1x Plug-in panel
1x Connecting lead, red
1x Connecting lead, blue
2x PIB connector
3x PIB wire, straight
3x PIB wire, T-shaped
2x PIB wire, angled
1x PIB resistor 1 kOhm
1x PIB lamp socket E10
1x Light bulb 10V/50mA
1x PIB resistor 10 kOhm
1x PIB photo resistor (LDR)
1x PIB transistor PNP, base left

Additionally required:
1x Voltage supply

AUTOMATIC LIGHTING

EOS 3.7

The base current of a transistor is controlled by means of a LDR. Thus the transistor is switched through in dependence on the illumination.

Wiring:

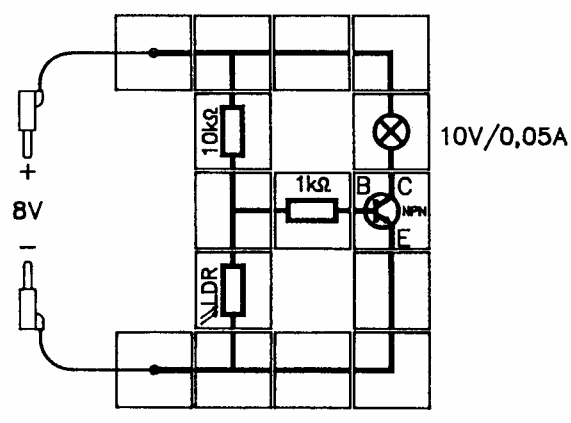
Arrange the wiring according to the illustration.

The voltage divider consists of a resistor 10 kΩ and the LDR.

The amount of resistance of the LDR is high at darkness.

The major part of the voltage lies at the LDR.

Thus base current flows and the lamp glows.

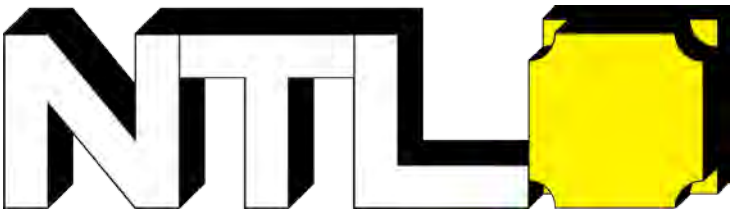


Experiment:

The amount of resistance of the LDR is darkened and illumined alternately.

The lamp should glow at darkening, the lamp does not glow when the LDR is illumined.

Conclusion:
The wiring (by means of an LDR which serves as a resistor at the emittor) is such that the light is automatically switched on at darkness and switched off at daylight.



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