

Additional notes for Transistor Switch Project

Temperature sensor , 70-6025

Please use these additional notes alongside the Project notes for 70-6024 Transistor Switch Nightlight.

The circuits work by using a transistor as a switch. The example circuits use a 100k Ω thermistor, 61-0420, as supplied in the kit, and a variable resistor (This can be a range of fixed resistors of various values or a potentiometer, e.g. 67-0418, available separately). The thermistor and variable resistor form a potential divider. The voltage output of the potential divider is applied to the 1k Ω base resistor and turns the transistor on or off. By swapping the thermistor and variable resistor, the circuit can be changed between a cold sensor and a heat sensor, the examples show both.

The simplest solution is a circuit that turns the LED on when the temperature rises. In the example, a 100k Ω potentiometer is used and the 100k Ω thermistor, the potentiometer being used to vary the temperature that the LED turns on.

Due to the way that thermistors work, the outputs will not have a definite on and off as with a light sensor. An improvement would be to use a higher quality thermistor such as a fast response thermistor, but they are more expensive to buy.

