

Butterfly++

Mini-Kit

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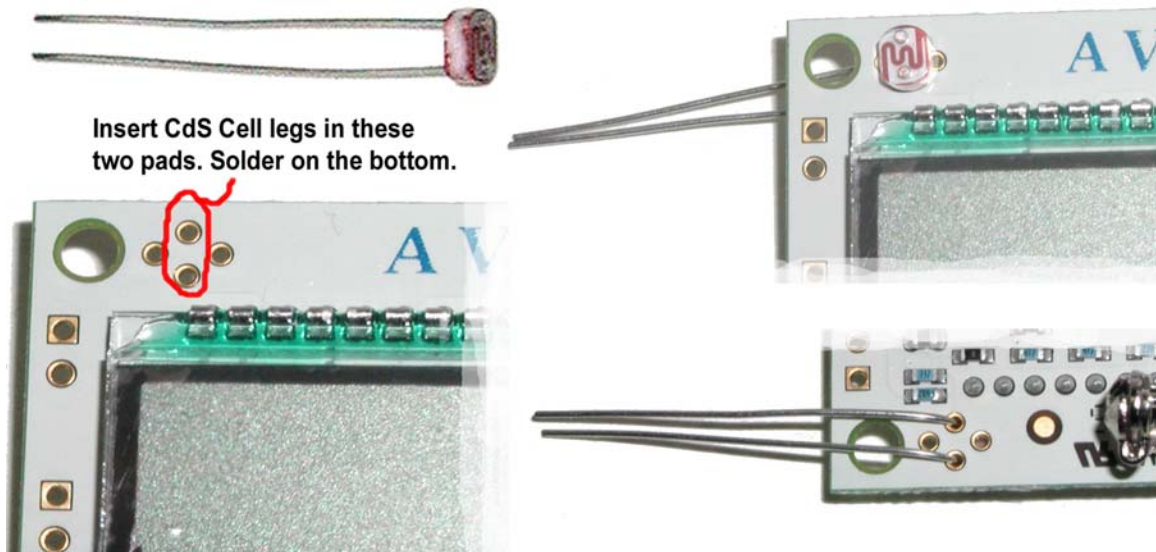
Introduction

The Butterfly provides an excellent learning platform, but it can be even better with a few extra parts that Smiley Micros supplies in the Butterfly++ Mini-Kit. This kit includes a CdS Light Sensor, a DB9 female connector and wires, and a 2-AA battery holder with power on LED and resistor.

CdS Light Sensor

Atmel's Butterfly no longer has a light sensor due to European RoHS compliancy considerations. The mini-kit provides a suitable substitute component that the user must solder to the Butterfly to use the light sensor function. This sensor works with the existing Butterfly software.

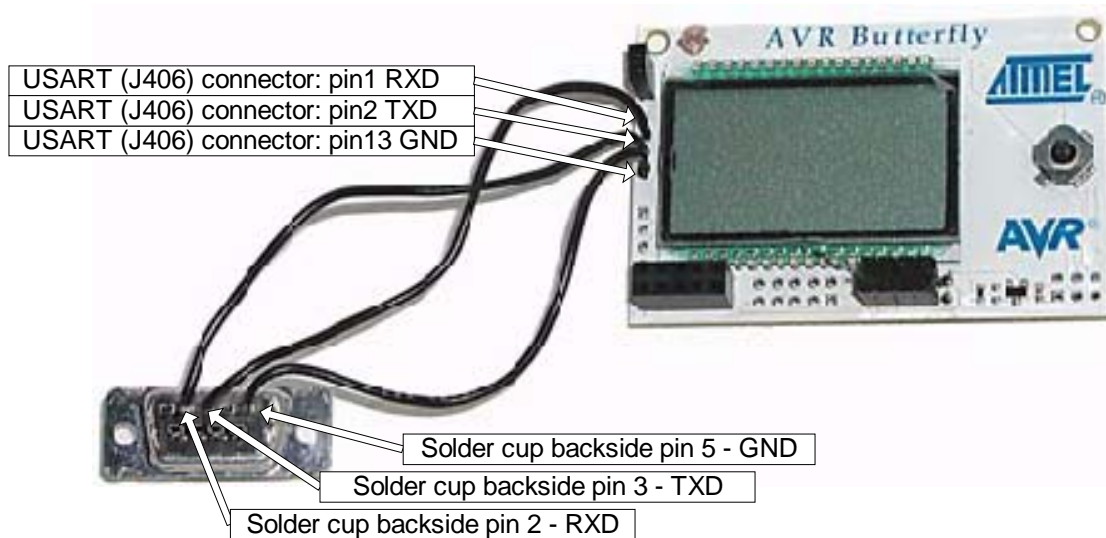
The CdS light sensor is device that has resistance proportional to the incident light. As a resistor, the device has no polarity so either leg can be inserted in the pads shown circled in red. Seat the sensor snug to the top of the Butterfly then solder the legs to the bottom and trim them just above the solder meniscus.



DB9 Female connector and wire

In order to communicate with a PC the Butterfly must connect to a serial cable. The mini-kit provides the connector and wire to make the connection to a serial cable.

The Butterfly has built-in RS232 converters for serial communication with a PC. Most serial cables will have a DB9 male connector on the device side that will mate with the provided DB9 Female connector (calm down – it's technical).



Strip about 1/8 inch from the ends of each wire and then carefully solder them to the Butterfly and the DB9 connector as shown. Notice that the upper wires in the picture cross. Be very careful to get this right, about half the emails I get for problems turn out to be related to either incorrect wiring or poor soldering this component.

Battery Holder and LED Power Indicator

The Butterfly has a coin cell battery that is good for operating the processor and the LCD, but will exhaust quickly when doing serial communications with a PC or powering LEDs and other external components in projects. The mini-kit includes a 2 AA battery holder (batteries not included) with a built in switch. We also include a LED and resistor that can be used to indicate power-on.

- Cut the red and black wires about one inch from the battery box.
- Strip off about 1/4" insulation on each wire.
- Twist the bare part of the black wires together.
- Solder the short leg of the LED to bare twist on the black wires.
- Twist the bare part of the red wires together.
- Solder either leg of the resistor to the bare twist on the red wires.
- Solder the other leg of the resistor to the long leg of the LED.

- Trim esthetically (whoops... too late, so at least make it non-nauseating)
- Use hot-glue to provide insulation and adhere the LED to the battery holder.
- Once you are back from running water on the hot-glue gun burn on your index finger, put a couple more glops to hold the wire in place more or less like in the illustration of the finished Butterfly++. Admire your work, trying not to think what hot-glue really looks like.
- Solder the red wire to the Butterfly as shown (pad 10 of the Port D land)
- Solder the black wire to the Butterfly as shown (pad 9 of the Port D land)

