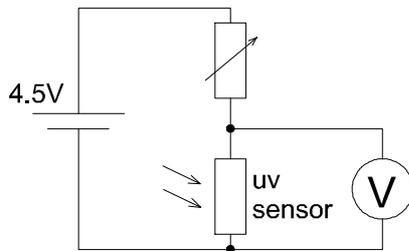


NOTES FOR SCHOOLS – DANGER OF DAMAGE TO UV SENSORS

We have been made aware of the Nelson Thornes AQA Science Scheme Physics experiment P1B5.3 which involves the use of a UV sensor.

Using any of our UV sensors in the circuit they recommend may lead to the sensor being burnt out. Currently we do not have a copy of the experiment but believe the circuit they suggest is similar to that below:

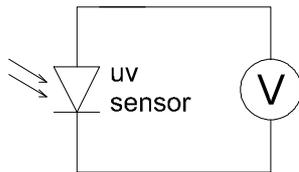


NOT RECOMMENDED WITH SCITEC INSTRUMENTS UV PHOTODIODES

DANGER OF DAMAGE

If the UV sensor used in the above circuit is an LDR (Light Dependent Resistor) or similar type then the circuit will operate satisfactorily. However, if the sensor is a photodiode, as supplied by Scitec Instruments, then adjusting the variable resistor down to zero will cause a large current to flow which will be very likely to blow the sensor.

Fortunately, there is a simpler circuit which allows measurements to be made without danger of damage to the UV sensor as shown below:



RECOMMENDED SIMPLE CIRCUIT

This circuit is no more complicated than simply connecting the sensor to a DVM (Digital Volt Meter). No power supply is required as the UV sensor generates electricity in exactly the same way as a solar cell. Expect to see voltages from 10mV to 100mV from the UV from florescent lights and 50mV to 1.5V in sunlight.

This circuit is however, completely non linear and shouldn't be used for making exact measurements of UV light levels. If a proper measurement is required, then an op-amp circuit is required such as the Scitec Instruments Multiboard or the UV-AIR-ABC-AMP probes. These are considerably more expensive though and probably not justified for a school type experiment.

The recommended part for the above circuit is the TW30SX sensor as it is the cheapest. It measures UVA, UVB and UVC light but as UVA from sunlight is far stronger than the rest, it is mainly this that it detects from the sun. A better sensor is the Eryca sensor which has a sensitivity matched to that of human skin but the output will be a lot smaller and the sensor is more expensive.

As part of Nelson Thornes experiment, it is suggest that microscope slides are used to smear sunscreen on to show the relative blocking ability. This is not something that Scitec has tried but please be aware that normal window glass is very good a blocking UV light. It is imagined that microscope slides will also block UV light to some extent.



Bartles Industrial Estate
North Street
Redruth
Cornwall TR15 1HR
United Kingdom

t. +44 [0]1209 314608
f. +44 [0]1209 314609
f2. +44 [0]870 1600860

i. www.scitec.uk.com
e. scitec@scitec.uk.com

Director. JW Smith Ph.D

Scitec Instruments Ltd
Registered in England
No. 1535664

Registered Office
Scitec Instruments Ltd
Bartles Industrial Estate
North Street, Redruth
Cornwall TR15 1HR