

## Solar panels / Solarmate - System Expansion.

Your solar installation can be expanded to run many 12v Dc appliances, including audio, visual, water pumps etc.

All appliances are parallel connected, circuit diagrams A & B show how this can be done.

Accessories can be individually switched & fused, this makes circuits and accessories easier to isolate and separate, without the whole installation being switched off, especially in the case of larger installations where many appliances are to be connected.

If a common supply fuse & connector block system is used (Diagram A) the supply fuse will need to be up-rated as accessories are added to the battery. Also the supply cable to the common connector block will need to be larger (1mm sq. will carry a max of 8.75amps, 2.5mm sq., 17.5amps etc)

Bear in mind that as the installation grows the size of the solar panel will need to increase quite possibly the battery to!

Solar panels can be connected together in Parallel to increase current/ watt output; this is a Positive to Positive & Negative to Negative connection. (Series connection will increase voltage) This connection can be made direct at the battery terminals or at the voltage regulator if fitted.

Parallel Connection can be seen in the circuit diagram C, solar panel A, is the original solar panel, panel B has been added in parallel as the power requirement has increased.

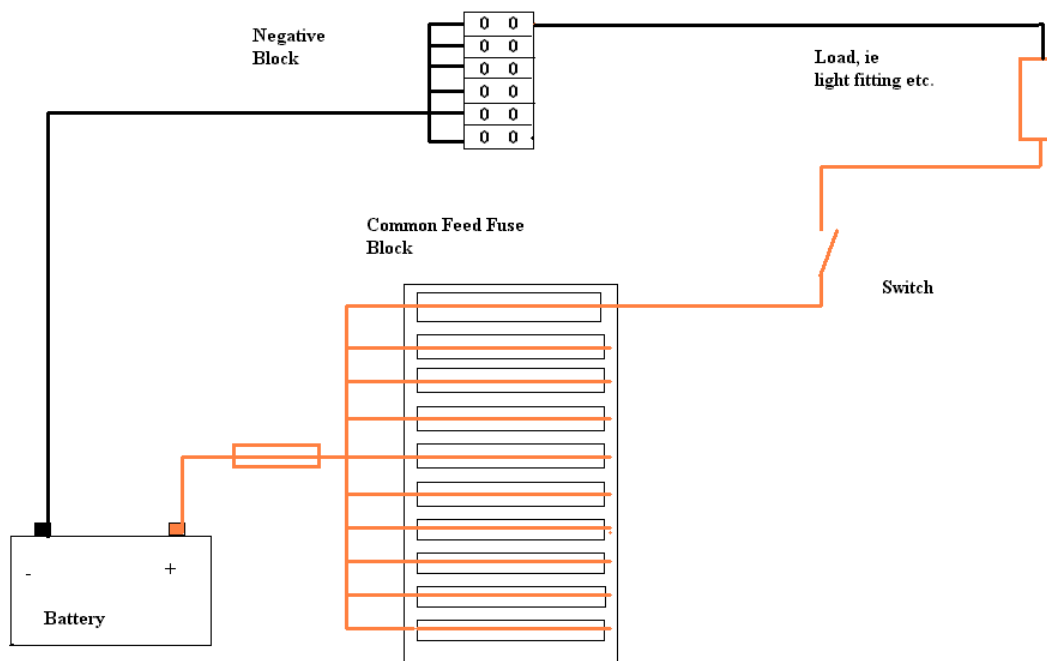
All circuits must be protected from short circuit & overload protection; if one fuse protects the whole installation do not exceed 20amps.

If Circuits are switched & fused individually, lower fuse values can be used ideally 5 - 10amps, & smaller cable sizes used for sub circuits (1mmsq for up to 8.75amps & 2.5mmsq for up to 17.5amps). The main supply cable must be fused as near to the battery terminal as possible.

The main supply cable fuse must be the largest value fuse in the installation, or larger than any other sub-circuit fuse used, the fuse rating must not exceed 20amps.

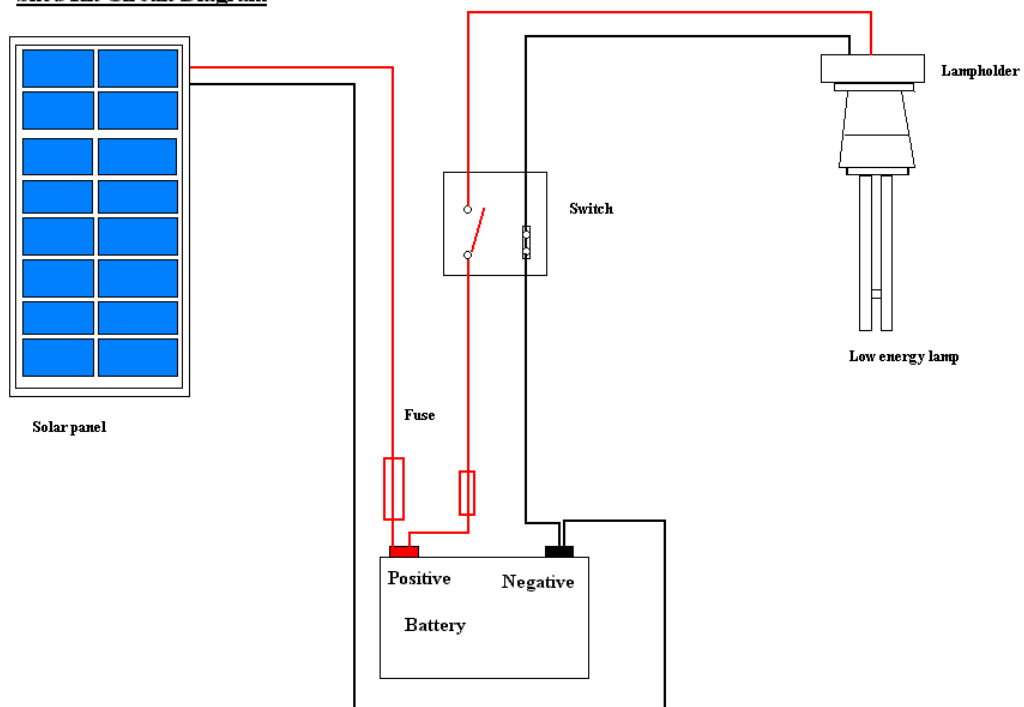
## Common fuse distribution. Diagram A

The diagram below shows a common fuse box circuit, the battery positive supplies the fuse box, and further sub-circuits are then supplied from the fuse box. The battery negative is also a common connection.

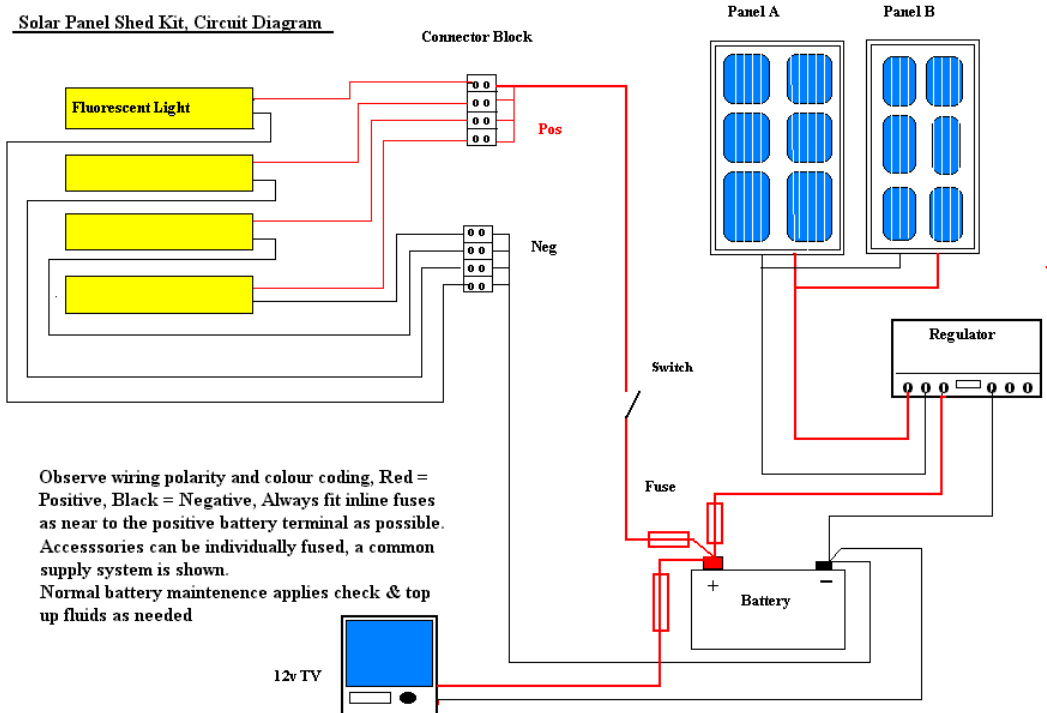


## Circuit Diagram B (Single Lamp installation)

Shed Kit Circuit Diagram



## Circuit Diagram C (Multi-lamp, with parallel connected solar panel)



For further information or advice on fitting your solar installation, call our customer help line on; 01684 774000

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