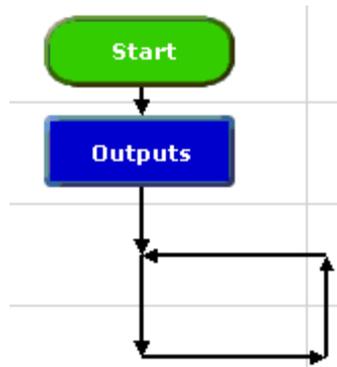


Troubleshooting Problems with a PIC based Project

1. Determine if the problem lies with the circuit or the flowsheet. To do this, write a simple flowsheet as illustrated below to switch on one or more outputs and leave them on. Test this in your circuit. If this works, then the problem lies with the flowsheet. See the PIC-Logicator manual for full information on the building of flowsheets.



2. Check the type of power supply to the project. All PICs except 8 pin ones run at 4.5-6 volts DC. 8 Pin chips should not be run above 5 volts. Never use a 9 volt supply (PP3 battery) – this **will** cause malfunction and may permanently damage the chip.
3. Check that power is supplied to the PIC and that the ground is connected.
4. Add capacitors to the project if not already fitted. Add a 100nF polyester and a 100uF electrolytic across the positive / negative rails to smooth the power supply to the PIC.
5. All PIC chips except the 8 pin variety need their reset pin held high through a 4k7 resistor. Check that this is in place and measure the voltage at the reset pin to be sure.
6. Check the power consumption of the output devices being used. A PIC can only supply enough current to light a standard LED through a resistor. Anything else requiring more current needs to be driven either through a transistor, relay or darlington driver. See the PIC-Logicator manual – section 2 for full details on interfacing to PICs.
7. Motors require driver chips and should not be run direct from the PIC outputs. Noisy cheap DC motors can cause the PIC to malfunction. Fit a 220nF suppression capacitor direct across the motor connections or use a solar type motor.

If all else fails, put the PIC into a ready made PCB such as an Economatics Project Board. This ensures that the flowsheet is working in circuit. Rectify any problems with the flowsheet in the Project Board and then transfer the working PIC into the project.