

This programming guide is for use with:

- A programmable music box.
- PIC logicator software.

Limitations of use:

- *It must be used with kits from Kitronik.*
- *It can't be used for commercial gain.*

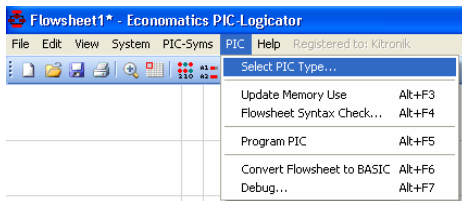
There is only one task, which is to make the board play a tune when the switch is activated.

Start PIC logicator

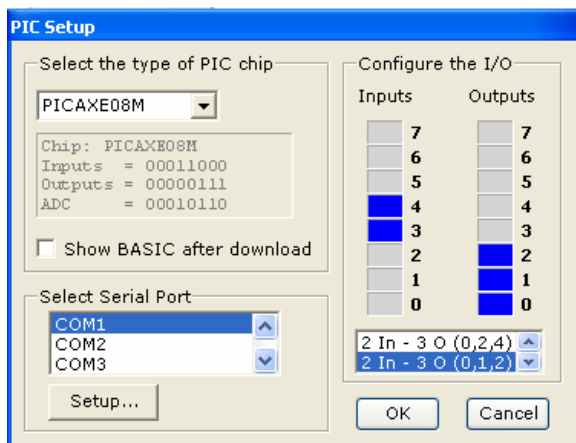
- **Press 'Start'.**
- **Select 'All Programs'.**
- **Select 'Economatics'.**
- **Run the application 'PIC logicator'.**

You need to select a PICAXE-08M chip. To do this:

- **Select the 'PIC' menu.**
- **Select 'Select PIC type...'**



The following menu will be displayed:



Make sure the type of PIC is a PICAXE08M (Top left) and that 3 & 4 are inputs and 0, 1 & 2 are outputs (right).

If this is not the case

- **Select PICAXE08M (top left)**
- **Select '2 In - 3 O (0,1,2)' from the list.**
- **Click OK.**

We are now ready to build up the flowchart.

The application loads with a start box at the top of the screen. We are going to add to this.

Each IO pin on the processor has been given a number so that it can either be tested or turned on or off.

This number is different to the pin number on the chip.

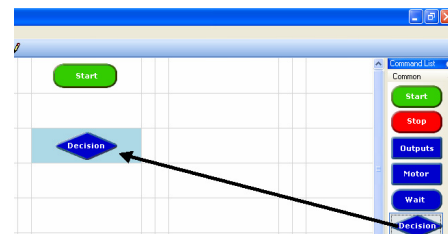
Your timer board has been wired up as follows:

Connection	Number
LED (not used)	1
Sounder	2
Switch	3

So to reference the switch we would use 3.

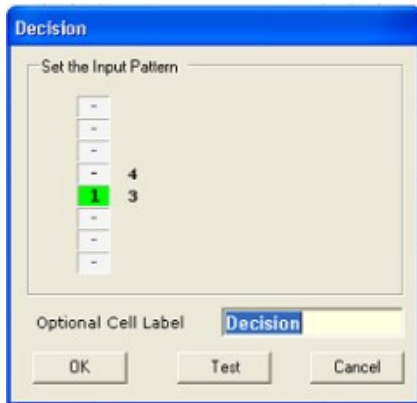
The first thing the software needs to do is check if the switch is pressed:

- **The toolbar on the right of the screen has a number of common flowchart boxes on it. Drag and drop a 'Decision' onto the main chart window under the start (leave a blank box as you will need to loop back into this 'Decision').**



The switch is on number 3 and we need it to wait until this becomes high (1). To do this:

- Double click on 'Decision' and a menu box will pop up.
- Set input 3 to show '1' as below (When you click on the input it will cycle through on, off, and unchanged).
- Press OK.

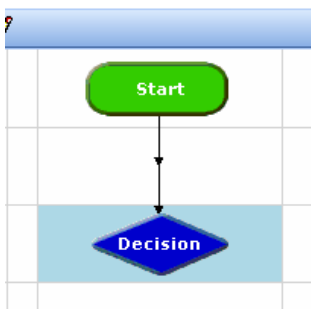


You need to join the 'Start' command to the 'Decision' command.



Select the 'line draw mode' icon on the top tool bar. The mouse pointer will change to show a pen. You need to use the right mouse button with this tool. Right click on 'Start'. Then right click on 'Decision'.

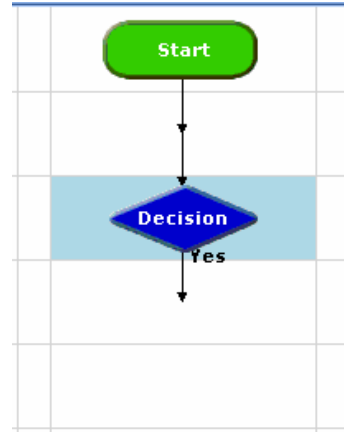
You will now have an arrow connecting 'Start' to 'Decision', as shown below:



To exit line drawing mode left click.

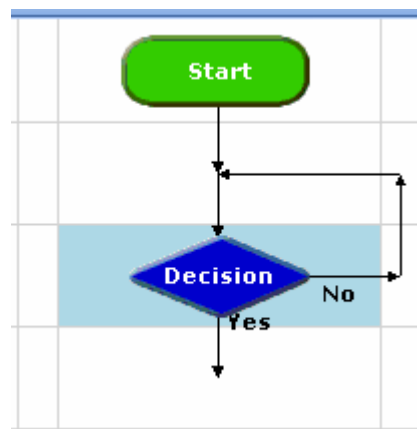
Please note: you can also connect the flowchart by pressing and holding the 'Ctrl' key and using the arrow keys.

The first path you connect on a decision box is the 'yes' path. As we want the program to continue when the decision is true, you need to put the path from the 'Decision' box to the empty box below in first.



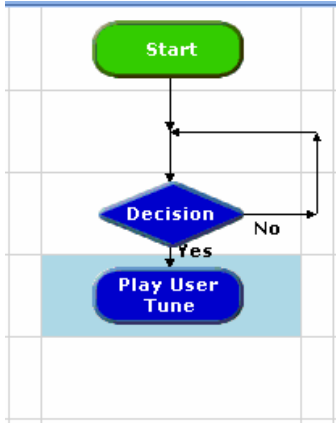
If you make the 'Decision' connections in the wrong order, right clicking on the 'Decision' gives the option to swap the 'Yes' and 'No' around.

You can now add the 'No' route, going back into the 'Decision' box.

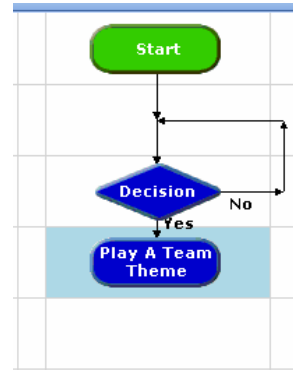


We need the tune to be played once the switch has been pressed.

- Drag and drop a 'Play user tune' from the right toolbar onto the chart below the 'Decision'.

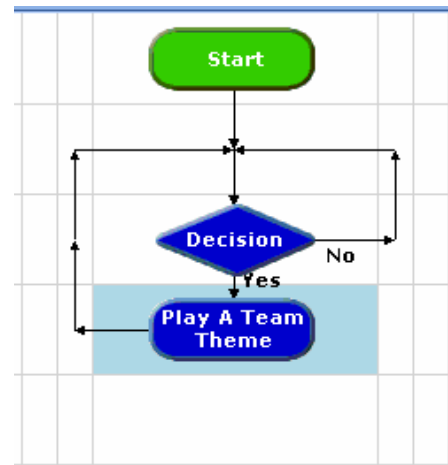
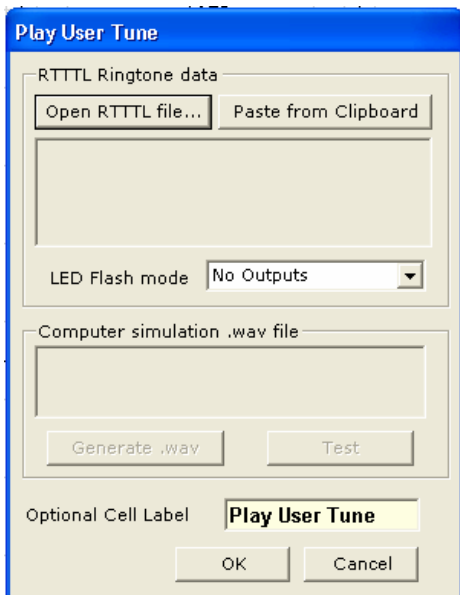


Once you have selected a tune & pressed OK, the box will change to indicate what tune has been chosen, in this case the A team theme.



When the tune has finished, you want the software to run again, so connect up a path as shown:

When you double click on the play user tune a menu is shown:



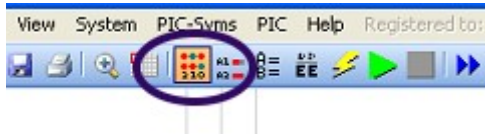
Press 'Open RTTTL file'.

You can now use any mobile phone ring tone that has been saved in the 'Ringing Tones Text Transfer Language (RTTTL)'. There should be plenty to choose from already installed on the computer.

The menu should now list all the notes in the tune. Press the 'Generate .wav' button, enter a file name and click ok (this will allow the program to be simulated).

You are now going to simulate the software on the PC, before you program your board.

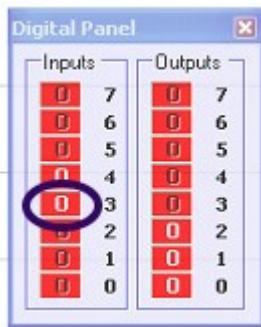
To help do this you will need to bring up the 'Digital Panel' which allows you to set inputs and view outputs. Press the 'Digital Panel' button on the tool bar.



Now you are ready to simulate, by pressing the 'Play' button.



You will see blue corners on the part of the program which is running, in this case it will be waiting for the decision of whether the switch is pressed to be true.



When you click on input 3 it will be set and the program will continue and the tune will play.

If your software didn't work as it should, double check the flowchart (on the previous page).

You are now ready to program the PIC. To do this make sure your board is powered up, it contains a PIXAXE® chip and that the programming cable is plugged into the board.

If you are still simulating, you will need to stop the simulation (Press the stop button).



Press the 'Program PIC' (lightning flash) button. A programming box will appear and all being well a short while later the chip will be successfully programmed and the box will go away.

If there is a problem with the connection or power to the board, a box will pop up to tell you so.

You're now ready to check the board works.

Press the switch and check the music starts. Check it works a 2nd time.

Well done you have completed the programming task.

If you would like the music to start playing when a box lid is opened and the switch is released, right click on the 'Decision' and select 'Swap YES and NO'. Then reprogram your board.

Thank you for using this guide, which has been produced by Kitronik in collaboration with New Media Learning Ltd, developers of Logicator.

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