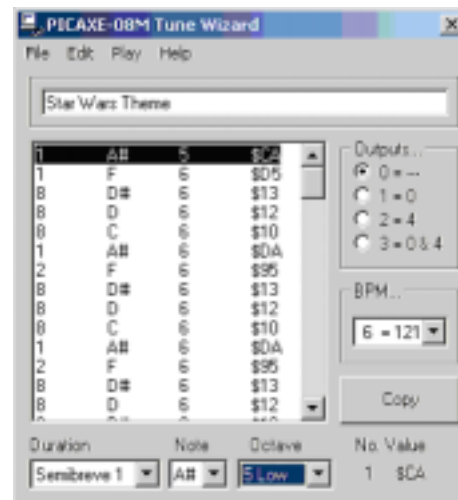


PICAXE-08M Tune Wizard

The Tune Wizard allows musical tunes to be created for the PICAXE-08M. Tunes can be entered manually using the drop-down boxes if desired, but most users will prefer to automatically import a mobile phone monophonic ringtone. These ringtones are widely available on the internet in RTTTL format (used on most Nokia phones). Note the PICAXE can only play one note at a time (monophonic), and so cannot use multiple note (polyphonic) ringtones.



There are approximately 1000 tunes for free download on the software page of the www.picaxe.co.uk website. Some other possible sources for free ringtones are:

<http://www.ringtonerfest.com/>
<http://www.free-ringtones.eu.com/>
<http://www.tones4free.com/>

To start the Tune Wizard click the PICAXE>Wizard>Tune Wizard menu.

The easiest way to import a ringtone from the internet is to find the tune on a web page. Highlight the RTTTL version of the ringtone in the web browser and then click Edit>Copy. Move back to the Tune Wizard and then click Edit>Paste Ringtone.

To import a ringtone from a saved text file, click File>Import Ringtone.

Once the tune has been generated, select whether you want outputs 0 and 4 to flash as the tune plays (from the options within the 'Outputs' section).

The tune can then be tested on the computer by clicking the 'Play' menu (if your computer is fitted with soundcard and speakers). The tune played will give a rough idea of how the tune will sound on the PICAXE, but will differ slightly due to the different ways that the computer and PICAXE generate and playback sounds. On older computers the tune generation may take a couple of seconds as generating the tune is very memory intensive.

Once your tune is complete click the 'Copy' button to copy the tune command to the Windows clipboard. The tune can then be pasted into your main program.

Tune Wizard menu items:

File	New	Start a new tune
	Open	Open a previously saved tune
	Save As	Save the current tune
	Import Ringtone	Open a ringtone from a text file
	Export Ringtone	Save tune as a ringtone text file
	Export Wave	Save tune as a Windows .wav sound file
	Close	Close the Wizard
Edit	Insert Line	Insert a line in the tune
	Delete Line	Delete the current line
	Copy BASIC	Copy the tune command to Windows clipboard
	Copy Ringtone	Copy tune as a ringtone to Windows clipboard
	Paste BASIC	Paste tune command into Wizard
	Paste Ringtone	Paste ringtone into Wizard
Play		Play the current tune on the computer's speaker
Help	Help	Start this help file.

Ring Tone Tips & Tricks:

1. After generating the tune, try adjusting the tempo by increasing or decreasing the speed value by 1 and listening to which 'speed' sounds best.
2. If your ringtone does not import, make sure the song title at the start of the line is less than 50 characters long and that all the text is saved on a single line.
3. Ringtones that contain the instruction 'd=16' after the description, or that contain many notes starting with 16 or 32 (the odd one or two doesn't matter) will not play correctly at normal speed on the PICAXE. However they may sound better if you double the PICAXE processor speed by using a 'setfreq m8' command before the tune command.
4. The PICAXE import filters 'round-down' dotted notes (notes ending with '.'). You may wish to change these notes into longer notes after importing.

Sound Circuits for use with the play or tune command.

The simplest, most economical, way to play the tunes is to use a piezo sounder. These are simply connected between the output pin 2 (leg 5) of the PICAXE-08M and 0V (see circuits below).

The best piezo sound comes from the 'plastic cased' variants. Uncased piezos are also often used in schools due to their low cost, but the 'copper' side will need fixing to a suitable sound-board (piece of card, polystyrene cup or even the PCB itself) with double sided tape to amplify the sound.

For richer sounds a speaker should be used. Once again the quality of the sound-box the speaker is placed in is the most significant factor for quality of sound. Speakers can be driven directly (using a series capacitor) or via a simply push-pull transistor amplifier.

A 40 or 80 ohm speaker can be connected with two capacitors as shown. For an 8 ohm speaker use a combination of the speaker and a 33R resistor in series (to generate a total resistance of 39R).

The output can also be connected (via a simple RC filter) to an audio amplifier such as the TBA820M.

The sample .wav sound files in the \music sub-folder of the Programming Editor software are real-life recordings of tunes played (via a speaker) from the microcontroller chip.

