



Function Generator mkl

Design and Instruction

Manual for Hobbyists and Engineers

Project Overview Manual

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1. Introduction

This project is for the design of a simple 8 bit function generator using a single PIC Microprocessor.

This design utilises a Microchip 18F46k22 processor clocked at 64MHz (16MHz Xtal and using 4x PPL) to store 32 waveform banks, each containing 64 bytes of sample data.

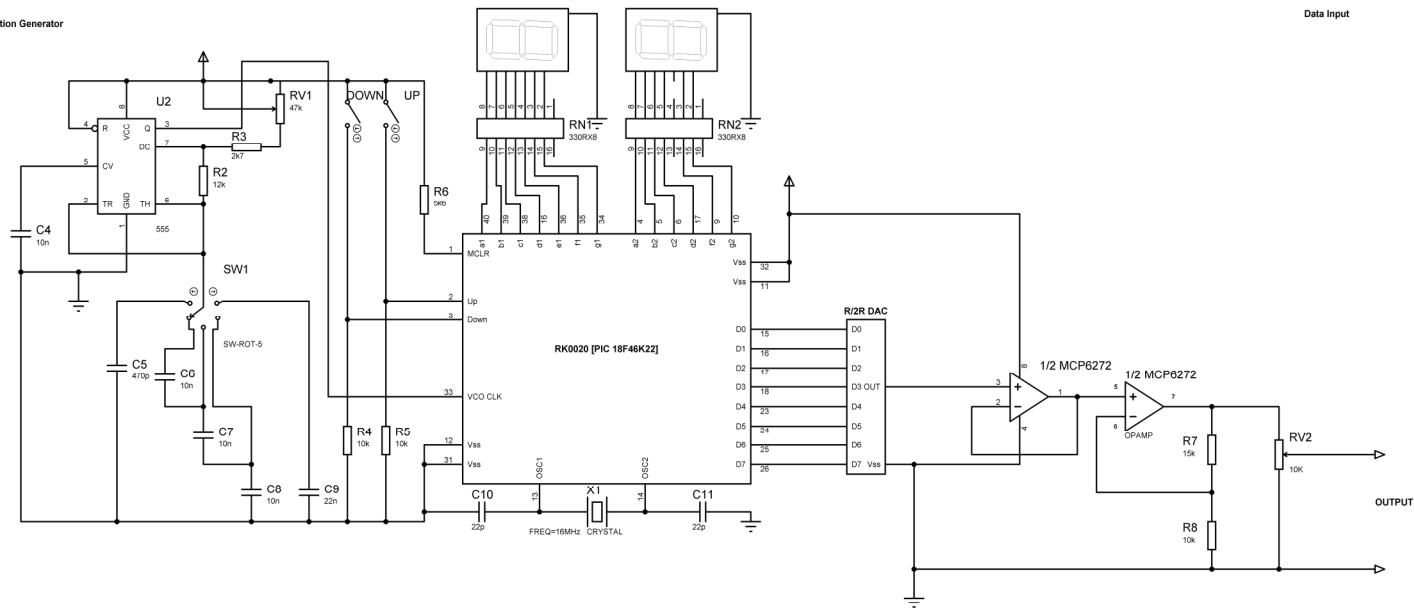
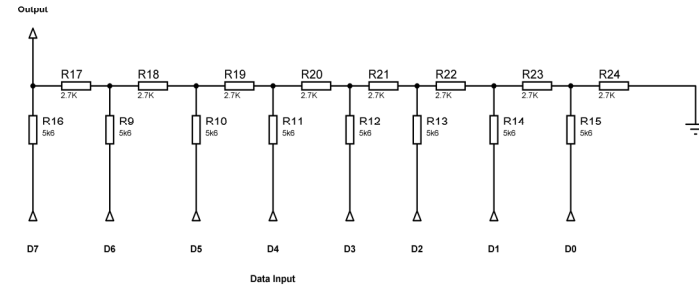
On a portb.0 interrupt input the waveform data access is incremented by one outputting the next byte of waveform data onto portD. Each of the 32 waveform banks are accessed using the up/down preset inputs.

Due to 64 bytes of waveform data per waveform period the input clock required is 64x the output frequency. Please note due to the speed of the 18F46k22 chip the maximum output frequency is approximately 1700 Hz. As a result this is not a high frequency function generator.

For a more advanced function generator please see my Function Generator mk II which is due to be released in February 2012 (project package uploaded to libstock.com in due course).

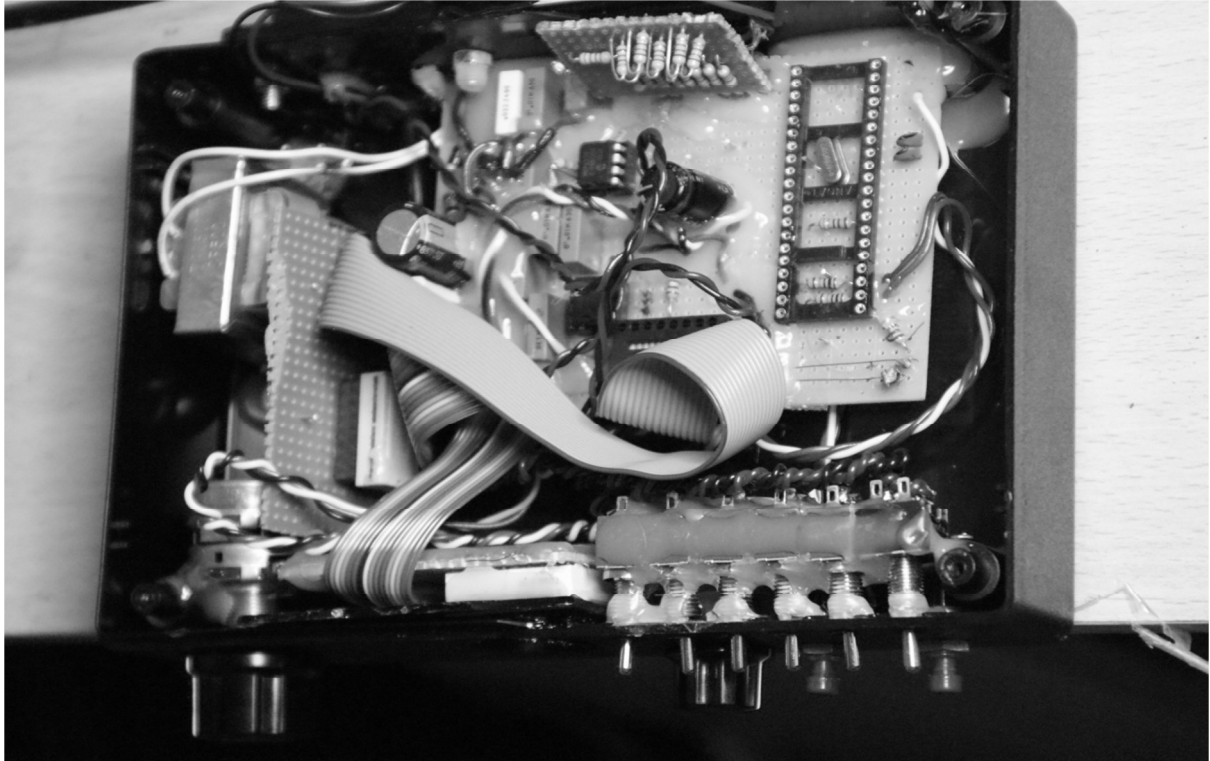
Sadly due to a Hard Disk crash on my old computer the original MikroBasic files were lost. However I managed to copy the .hex file from an original chip I programmed last year.

Have fun!



3. Photographs

Some photographs of my project



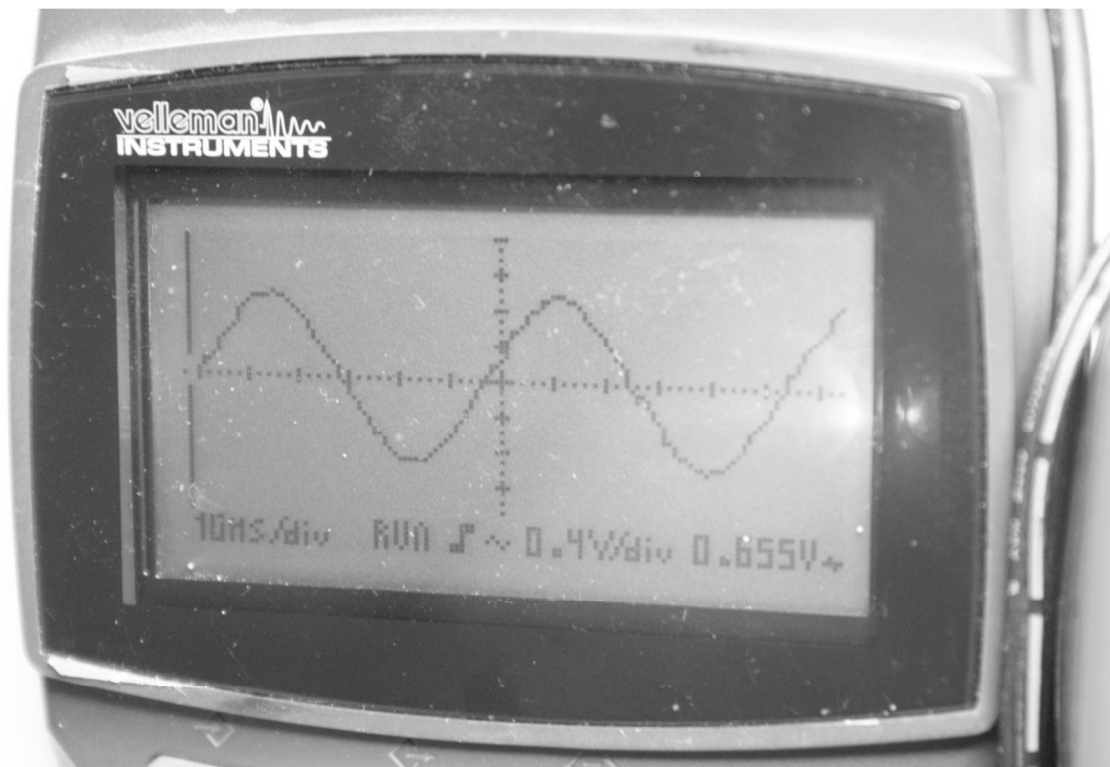
Picture 3.1 – Overall Inside View



Picture 3.2 – Close up view including R/2R resistor DAC



Picture 3.3 – Overall Casing



Picture 3.4 – Sine Wave Output