

CIRCUIT & DESIGN IDEAS

We invite readers to submit circuit ideas and solutions to design problems. Explain briefly but thoroughly the circuit's operating principle and purpose. Sources of material must be acknowledged and will be paid for if used. As these items have not necessarily been tested in our laboratory, responsibility cannot be accepted.

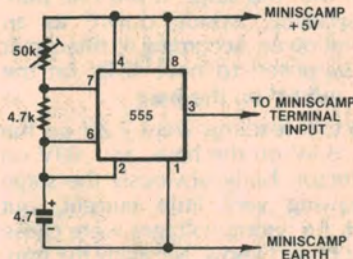
Conducted by Ian Pogson

A novel application for Mini Scamp

I have devised a way in which the Mini-Scamp microcomputer may "read" a potentiometer. The potentiometer controls the frequency of an oscillator connected to my Mini Scamp's terminal input, as shown in the diagram. Power for the oscillator is taken directly from the computer's +5V supply.

In order to read the potentiometer, I have written a short subroutine. The subroutine develops a count when "sense B" goes low. When "sense B" goes high the count is stopped and is then proportional to the period of the oscillator. This hex number is put in AC before the subroutine returns to the calling program. While it is not possible to select the oscillator components to give numbers over the full range of 0-X'FF from a potentiometer, the computer itself can be used to scale readings in order to achieve this.

This idea has applications in things like



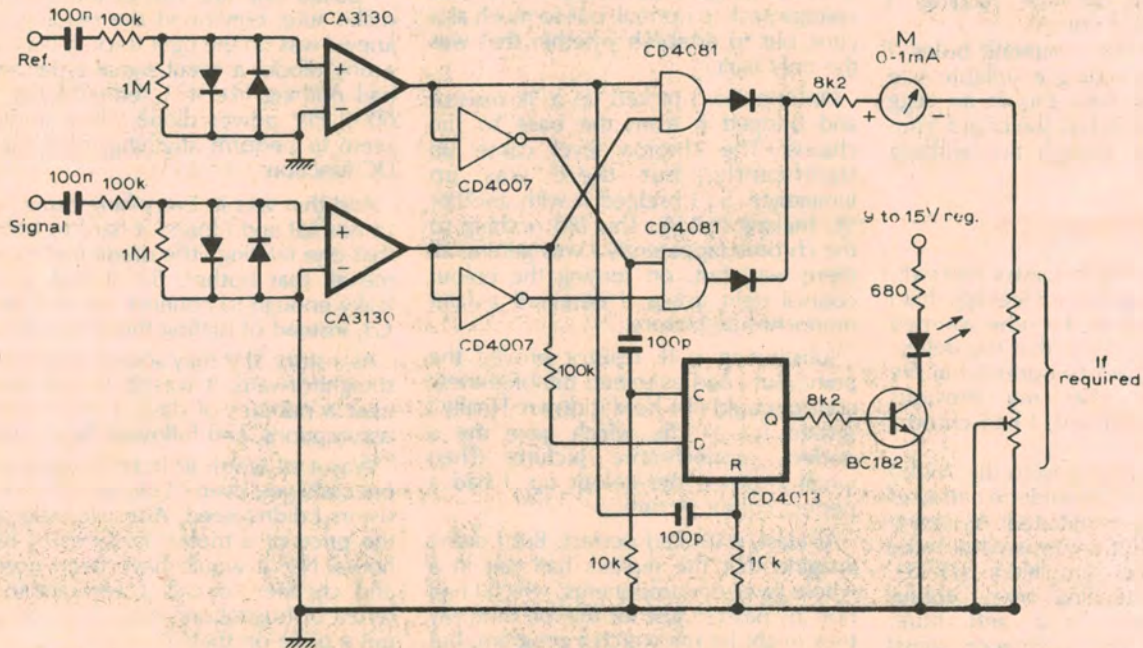
servos - for feedback into the computer, or it could be used to measure resistor or capacitor values by substituting the unknown for one of the oscillator components. The values of the components in the oscillator are those I used but they are open to experiment. Finally, the basic idea may be used with computers other than Mini Scamp simply by adapting the software.

(By Mr A. Partridge, 223 George Street, Launceston, Tasmania 7250.)

Address	Code	Label	Mnemonic
020	08		NOP
021	C400	Start	LDI 0
023	01		XAE
024	06	*1	CSA
025	D420		ANI X'20
027	9CFA		JNZ *1
029	06	*2	CSA
02A	D420		ANI X'20
02C	9C0A		JNZ *3
02E	C401		LDI 1
030	70		ADE
031	01		XAE
032	C400		LDI 0
034	8F01		DLY 1
036	90F1		JMP *2
038	01	*3	XAE
039	3F		XPPC 3
03A	90E5		JMP Start
03C			

Note: Subroutine is completely relocatable. Must be called with P3.

Phase meter for audio frequencies



A standard multimeter can be used to make phase measurements at audio frequencies with the circuit shown. The meter is calibrated for a full scale deflection of 180° and a LED indicates when the phase difference is greater than

180°. The 4013 flipflop is reset at the start of a positive excursion of the reference signal and a clock pulse is provided at the start of a negative excursion.

If the data input of the flipflop is high

when the clock pulse occurs, the LED is switched on for half a cycle. The values shown are for a 12V supply.

(By N.G. Boreham, in "Wireless World", August 1979).