



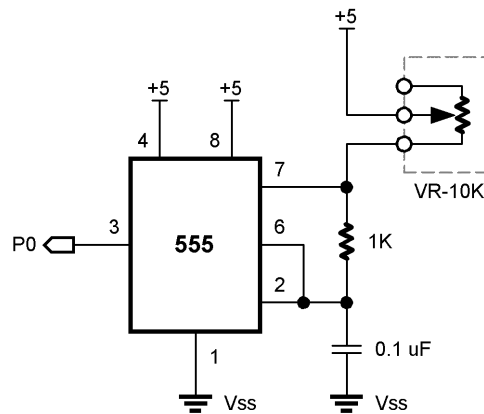
## Experiment #17: Frequency Measurement

This experiment determines the frequency of an incoming pulse stream by using the BASIC Stamp's `COUNT` function.

### New PBASIC elements/commands to know:

- `COUNT`

**Building The Circuit** (Note that schematic is NOT chip-centric)



```
=====
|
| File..... Ex17 - FreqIn1.BS2
| Purpose... Frequency input
| Author.... Parallax
| E-mail.... stamptech@parallaxinc.com
| Started...
| Updated... 01 MAY 2002
|
| {$STAMP BS2}
|
|=====
```

## Experiment #17: Frequency Measurement

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```
' -----
' Program Description
' -----

' This program monitors and displays the frequency of a signal on Pin 0.

' -----
' I/O Definitions
' -----

FreqPin          CON      0          ' frequency input pin

' -----
' Constants
' -----

OneSec           CON      1000       ' one second - BS2
' OneSec         CON      2500       ' BS2sx
' OneSec         CON      3484       ' BS2p

' -----
' Variables
' -----

freq             VAR      Word       ' frequency

' -----
' Program Code
' -----

Main:
COUNT FreqPin, OneSec, freq      ' collect pulses for 1 second
DEBUG CLS, "Frequency: ", DEC freq, " Hz" ' display on DEBUG screen
GOTO Main                          ' do it again

END
```

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### Behind The Scenes

In the previous experiment, several lines of code were used to count pulses on an input pin. That method works when counting to a specific number. Other programs will want to count the number of pulses that arrive during a specified time period. The BASIC Stamp's `COUNT` function is designed for this purpose.

The frequency of an oscillating signal is defined as the number of cycles per second and is expressed in Hertz. The BASIC Stamp's `COUNT` function monitors the specified pin for a given amount of time. To create a frequency meter, the specified time window is set to 1000 milliseconds (one second).

### Challenge

Improve the responsiveness (make it update more frequently) of this program by changing the `COUNT` period. What other adjustment has to be made? How does this change affect the ability to measure very low frequency signals?