



PilMic

## PilMic Introduction

PilMic is a CASL-based application for the Palm-Pilot PDA that measures small objects placed on the Pilot screen. One possible application would be the measurement of items, like seeds or other "field samples". Another possible use is for checking the size of drill bits, odd fittings, etc. PilMic has these features:

- Measures object widths in inches, mm and 64th-inches
- Has an accuracy of 0.03 inches or better (about 1/64 - 2/64 inch accuracy; 0.5 -1mm accuracy)
- Includes average and standard deviation calculation of up to 50 measurements
- Also calculates average and standard deviation for input data
- Maximum width of 1.96 inches (about 50mm)

PilMic requires a palm-Pilot PDA running OS 2.0 or higher, MathLib, and the CASL runtime.

## How to Install

For users with the CASL Pilot OS 2.0 runtime (CASLrt\_pro.prc) and MathLib (MathLib.prc), download [PilMic.prc](#)

For users who need the CASL runtime and/or MathLib, download [PilMic.zip](#)

Unzip the files into a directory of your choice. Use the Pilot install tool to install Sun-Pal.prc and, if you don't already have them on your Pilot, CASLrt\_pro.prc, and MathLib.prc. Hot synch your Pilot and everything will be installed and ready to run.

## How to Use

Refer to the [screen clip](#) below. Operation:

1. Place the item to be measured on the Pilot screen, roughly centered on PilMic's hash marks (initially appearing as a single, centered mark).
2. Use the >> or > buttons to "open up" the measuring hashes in 10x or single steps.
3. Use the << or < buttons to "close down" the measuring hashes in 10x or single steps.
3. Use the 0 button to bring both hashes together and centered (starting point).
4. Use the DATA button to add the current measurement to the data set. The output

console only shows average and standard deviation after the second data point has been entered. The data function is not available for 1/64th inch measure units. CLR clears the data set (all data is lost) and resets the hash marks.

5. DATA can also be used to obtain the average and standard deviation for data entered in the measurement output text box. Just enter a number in the textbox and hit the data key. The program does not do any fancy data input validation, so entering a non-numerical item in the box will register as a 0 in the data set (and will count as a point in any averaging that occurs when some numbers are entered).

6. The < and > buttons to the right of the output console scroll the lines up and down. All calculated output is shown on the visible three lines, so one should normally not need these. They will show additional information when scrolling the initial output "screen".

7. The selector is used to set the measurement units to inches, mm or 1/64th inches. Note that the data storage for the average and std-dev is scale specific, so switching units in the middle of a set of measurements will result in nonsense values for avg. and std-dev. The feature in 5., above, prevented me from keeping the data in a non scale form and creating the avg. and std-dev. on the fly.

## PilMic

The screenshot shows the PilMic interface. At the top is a large empty rectangular box. Below it is a console window displaying "2 Data Points", "Average: 0.1930 in", and "Std Dev: +/- 0.0187 in". To the right of the console are two buttons labeled "<" and ">". Below the console is a selector with "inch" selected and "mm" below it, with up and down arrows. To the right of the selector are two buttons labeled "Data" and "Clr". At the bottom is a numeric keypad with buttons for "<<", "<", "0", ">", ">>", and a display showing "0.1797 in".

**DATA** - Saves current data point. Up to 50 points.

**CLR** - Clears the data set.

**SELECTOR** - Lists measurement units. Double tapping selects inches (default), mm or 1/64th inches. [See note, above.](#)

**> and >>** - Used to open the measurement hashes (single and 10x steps).

**< and <<** - Used to close the measurement hashes (single and 10x steps).

**0** - Completely closes the measurement hashes.

**OUTPUT** - Measurement output textbox. Also used to input numerical data.

**CONSOLE** - Output area for results and for ABOUT information.

**<** - Scrolls console UP.

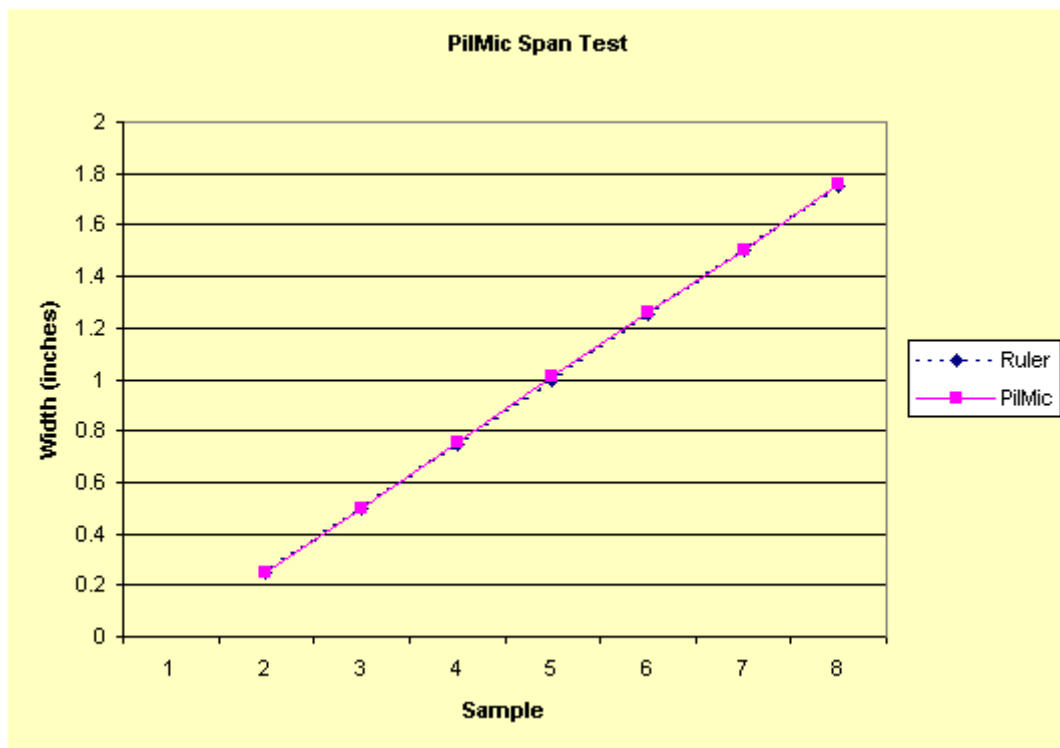
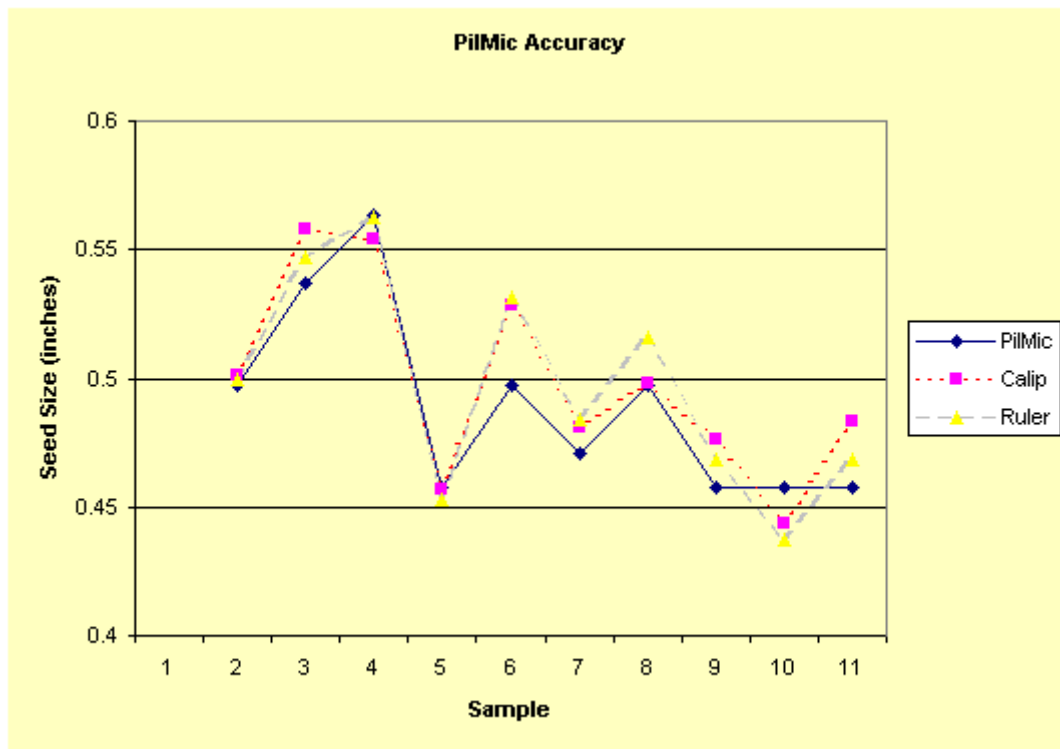
**>** - Scrolls console DOWN.



## Background

PilMic is released to the public domain and is freeware. There is NO WARRANTY and accuracy is not known. Please run your own calibration checks on PilMic's accuracy before you use the results. FishSoft and the author are not responsible for any damages, etc. that occur due to your use of PilMic. PilMic is Copyright (C) June 1998, Dave Fischer, [dfischer@provide.net](mailto:dfischer@provide.net). PilMic; V0.10; 7/1/98.

In developing PilMic, I needed to test its accuracy and functionality. I include graphs from two tests. The first took a set of 10 tree seeds and measured their length using a 64th inch steel rule, a 0.001 inch accurate caliper and PilMic. The output graph shows fairly good agreement between all three methods at a resolution of 0.03 inches or so. The second test compared PilMic to measurements off a 64th inch steel rule at 0.25 inch increments. This test was to look at the accuracy across the span and, again it showed good correlation.



CASL is a neat language to work in for the Palm Pilot and more information can be found at [www.cassoft.com](http://www.cassoft.com). Rick Huebner should be thanked for his [MathLib](#) (see note at bottom of page), which gives CASL a wealth of math functions not found in the core language (and quite difficult to code using numerical methods). Rick has a neat Pilot application called

MathPad, which is a great tool for anyone wishing to create mathematical models on the Pilot. And, like everyone else doing development for the Pilot, I owe a thanks to Greg Hewgill for his Copilot Pilot simulator (now available from 3Com as the [Emulator](#)).

Mathlib note: MathLib is a free shared library that can be used by any OS 2.0 Pilot program that needs IEEE 754 double precision math functions. It's distributed under the terms of the GNU General Public License, and is freely available with full source code and documentation at the [MathLib Information web page](#). It's not a part of the MathPad program, and you're not paying anything for its use; a copy is simply included in this archive for your convenience.

## Revision History

V0.10 - 7/25/98 - Initial release.

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[BACK TO PALM PILOT PAGE](#)