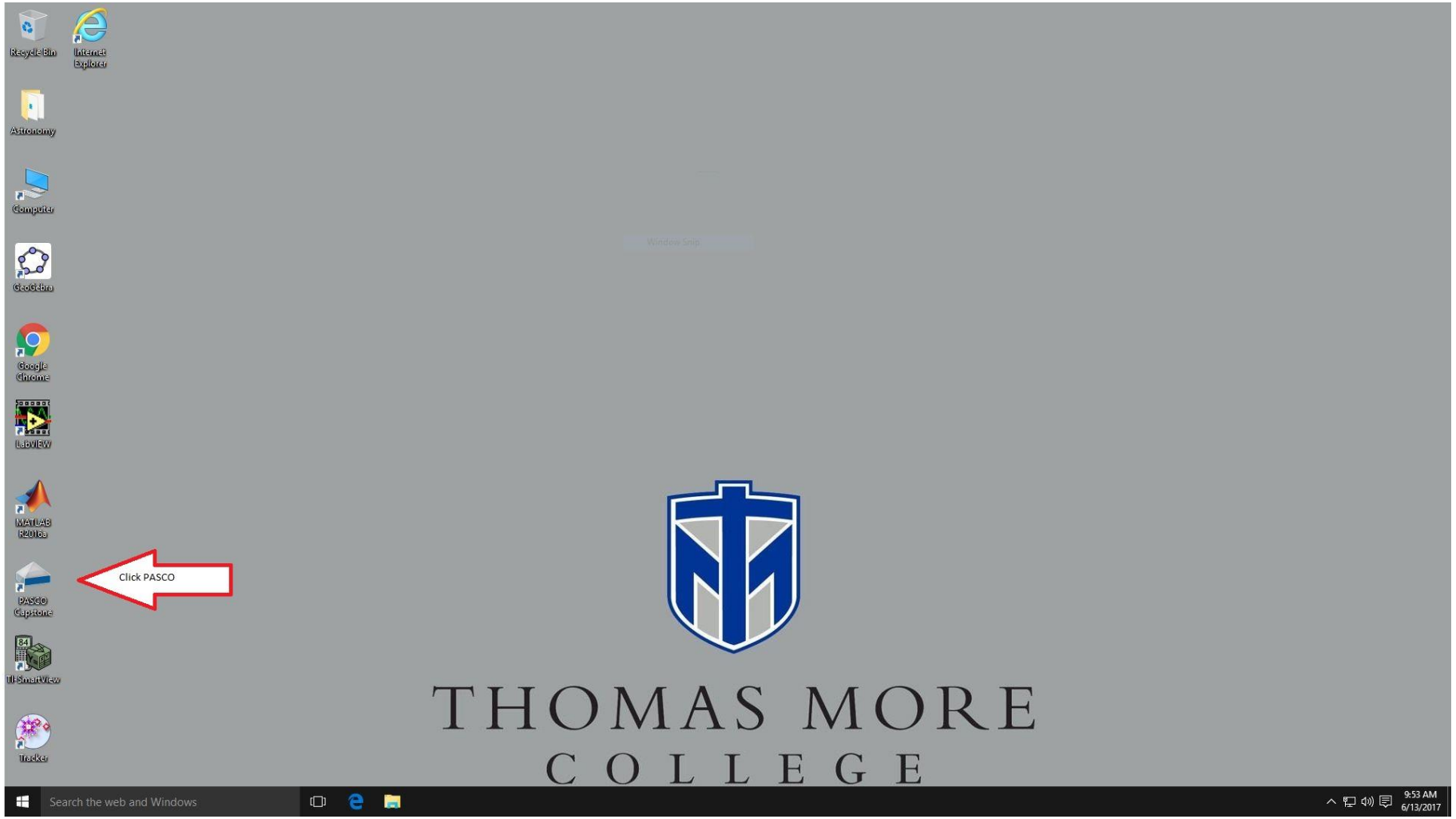
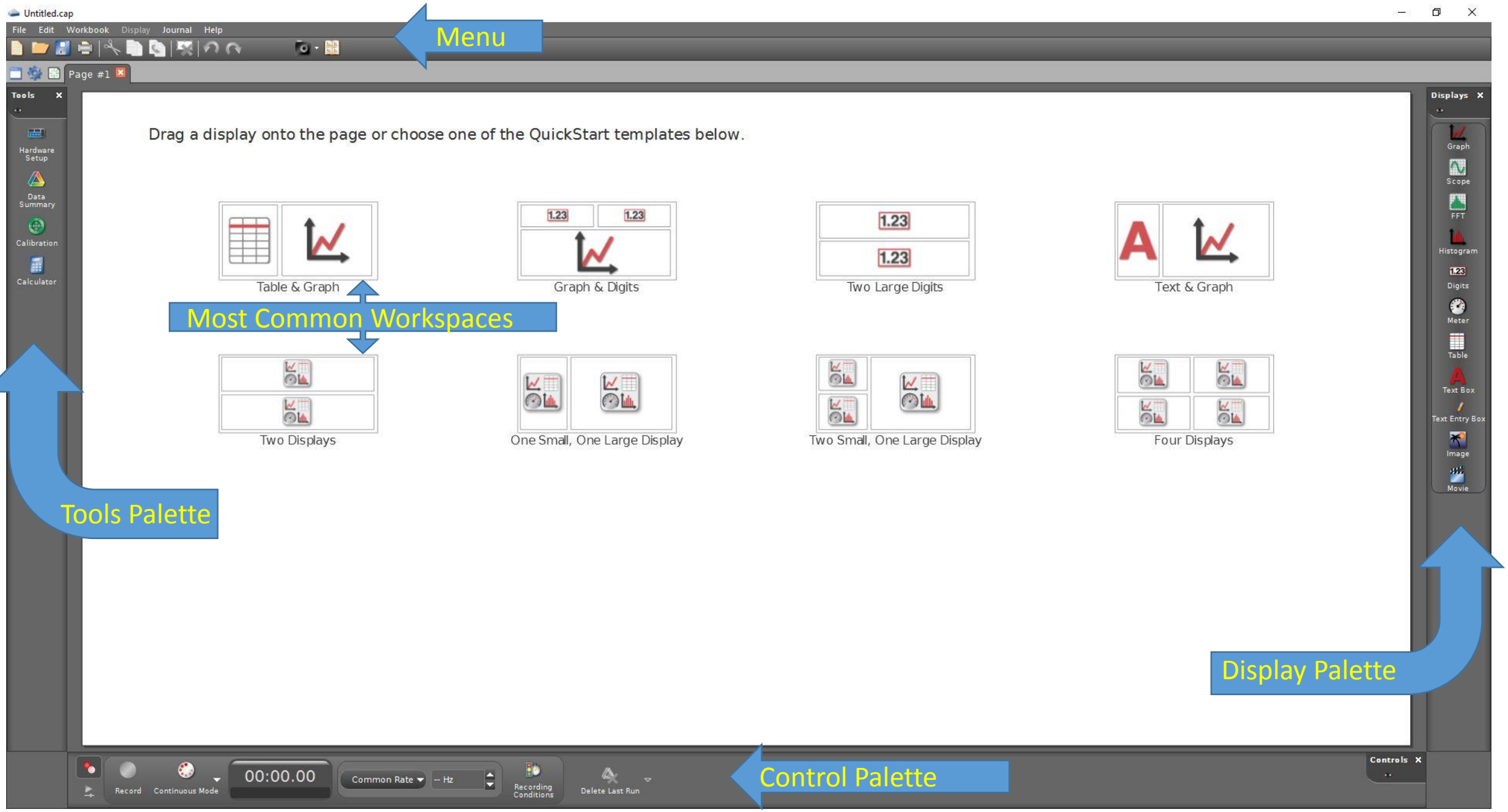
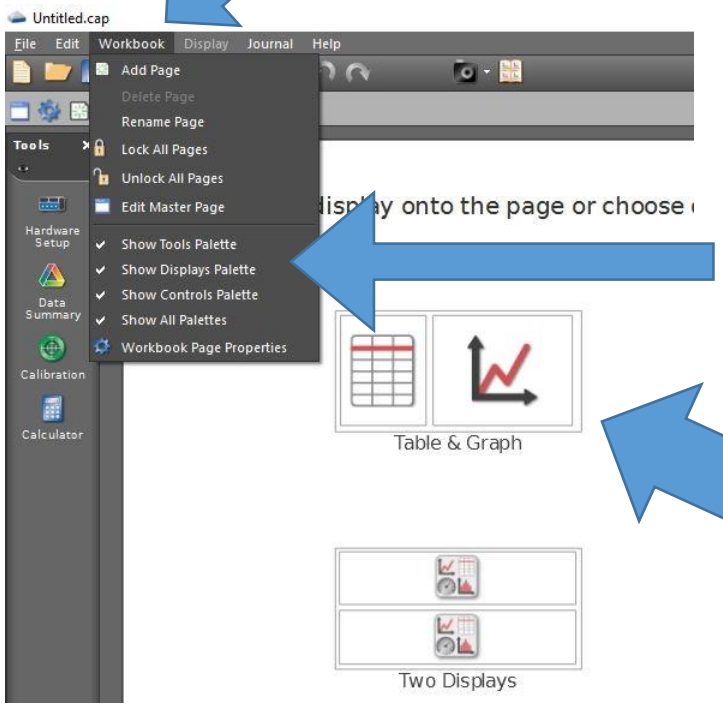

Recycle Bin
Internet Explorer
Astronomy
Computer
GeoGebra
Google Chrome
LabVIEW
MATLAB R2016a
Click PASCO
PASCO Capstone
TI SmartView
Tracker
THOMAS MORE
COLLEGE
Search the web and Windows
9:53 AM
6/13/2017

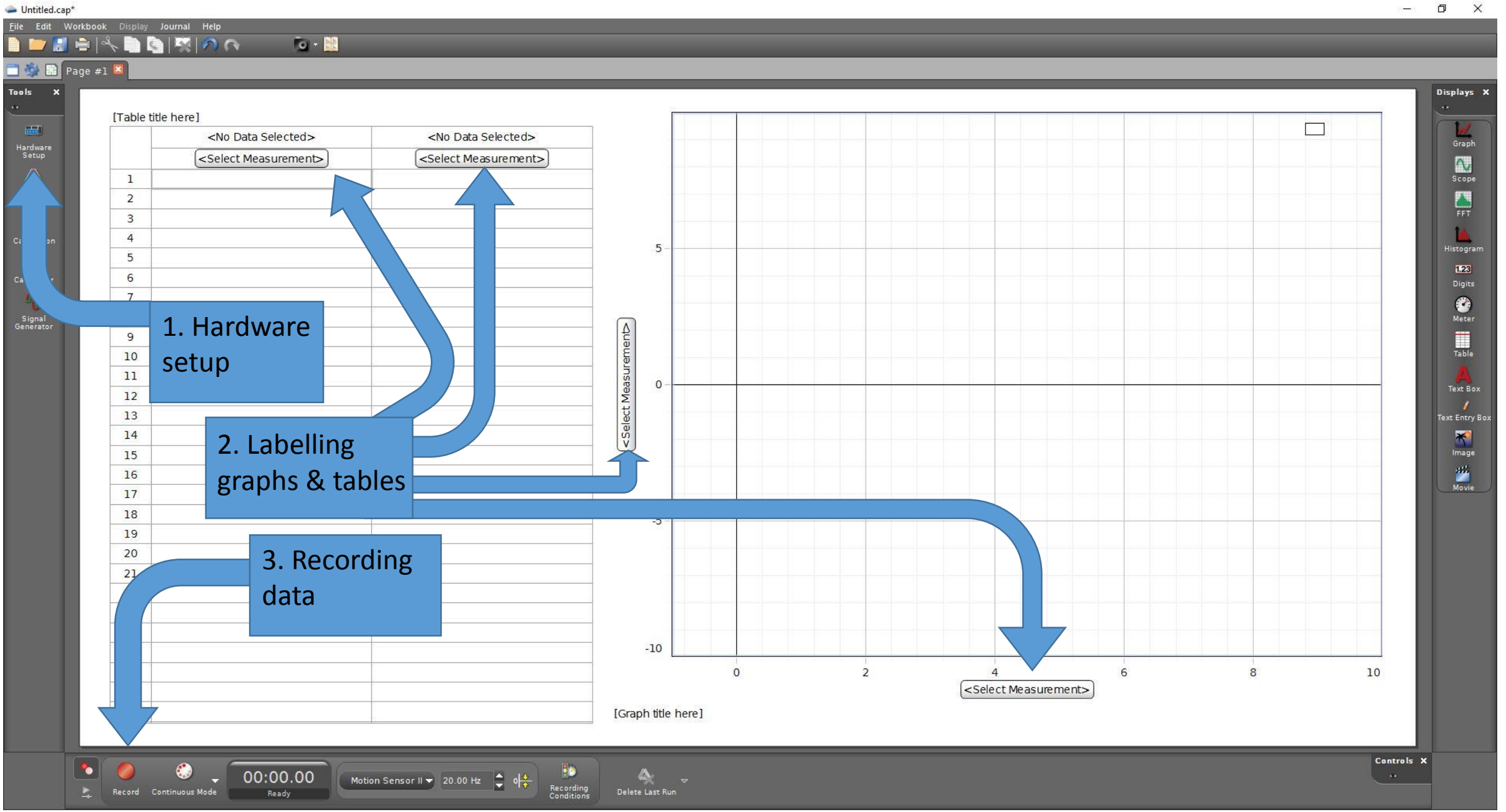

Untitled.cap
File Edit Workbook Display Journal Help
Menu
Page #1
Tools
Hardware Setup
Data Summary
Calibration
Calculator
Drag a display onto the page or choose one of the QuickStart templates below.
Table & Graph
Graph & Digits
Two Large Digits
Text & Graph
Most Common Workspaces
Two Displays
One Small, One Large Display
Two Small, One Large Display
Four Displays
Tools Palette
Displays
Graph
Scope
FFT
Histogram
Digits
Meter
Table
Text Box
Text Entry Box
Image
Movie
Display Palette
Record
Continuous Mode
00:00.00
Common Rate
-- Hz
Recording Conditions
Delete Last Run
Control Palette
Controls

1. If you don’t see a palette,
click [Workbook] in the menu



2. Click to display or remove
whichever palette you like.

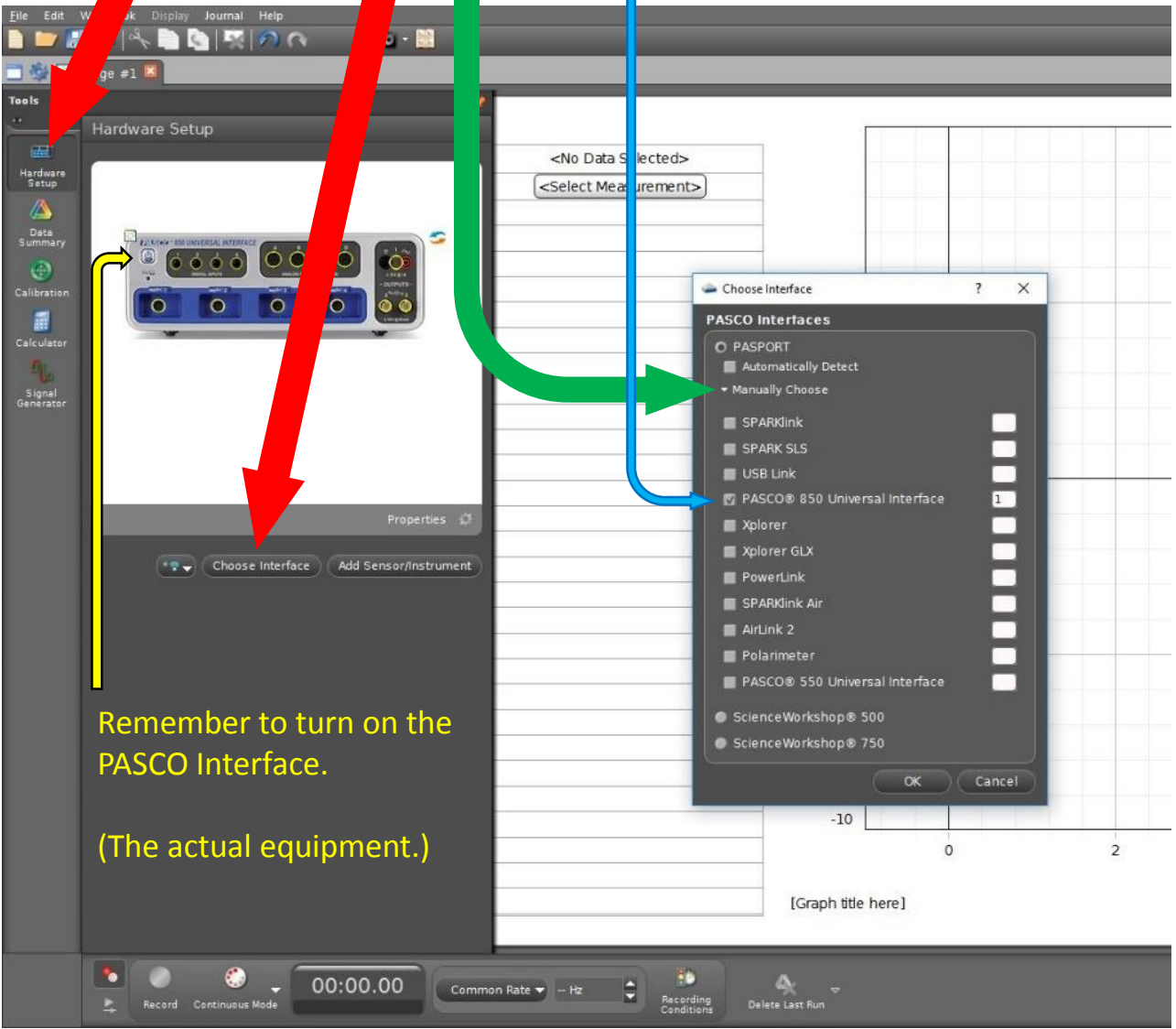
3. When you are ready to take and
display data, select [Table & Graph]


Untitled.cap*
File Edit Workbook Display Journal Help
Page #1
Tools
Hardware Setup
Signal Generator
Displays
Graph
Scope
FFT
Histogram
Digits
Meter
Table
Text Box
Text Entry Box
Image
Movie
[Table title here]
<No Data Selected>
<Select Measurement>
<No Data Selected>
<Select Measurement>
1
2
3
4
5
6
7
9
10
11
12
13
14
15
16
17
18
19
20
21
1. Hardware setup
2. Labelling graphs & tables
3. Recording data
5
0
-5
-10
0
2
4
6
8
10
<Select Measurement>
<Select Measurement>
[Graph title here]
Record
Continuous Mode
00:00.00
Ready
Motion Sensor II
20.00 Hz
Recording Conditions
Delete Last Run
Controls

Clicking [Hardware Setup] should give an image of the PASCO 850 Universal Interface.

If not, click [Choose Interface].

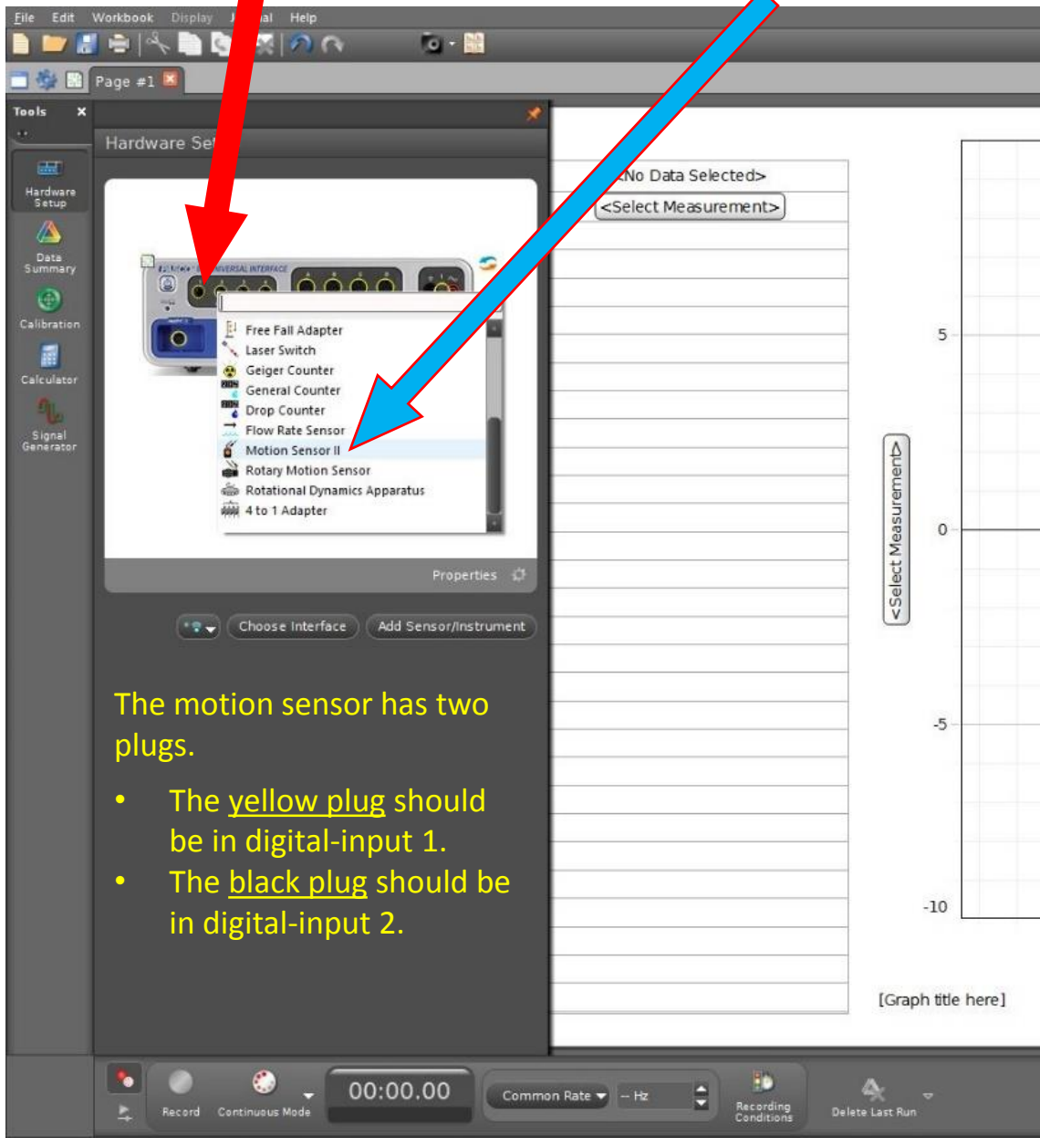
You might need to open the [Manually Choose], then check PASCO 850 Universal Interface.



Remember to turn on the PASCO Interface.

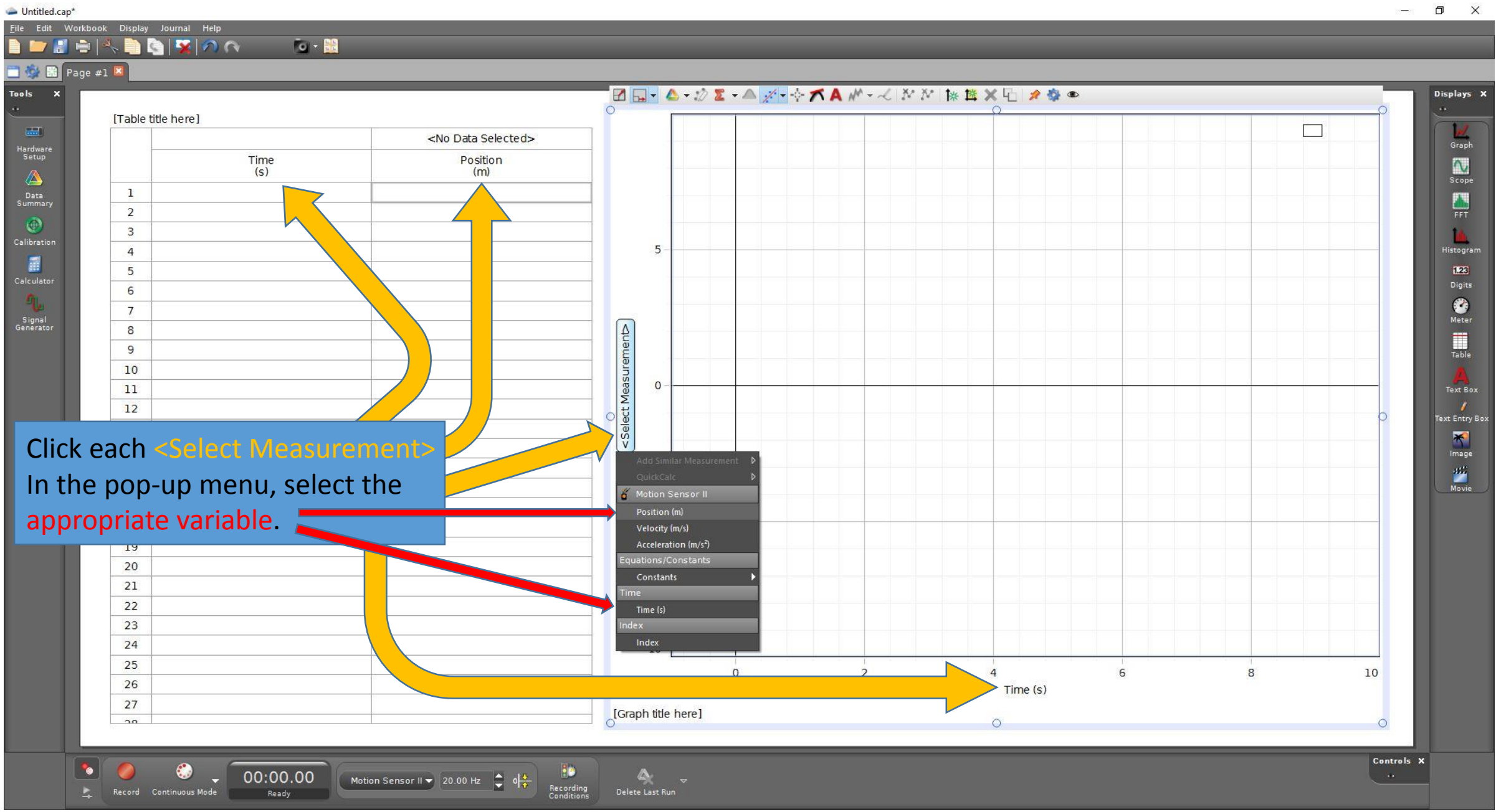
(The actual equipment.)

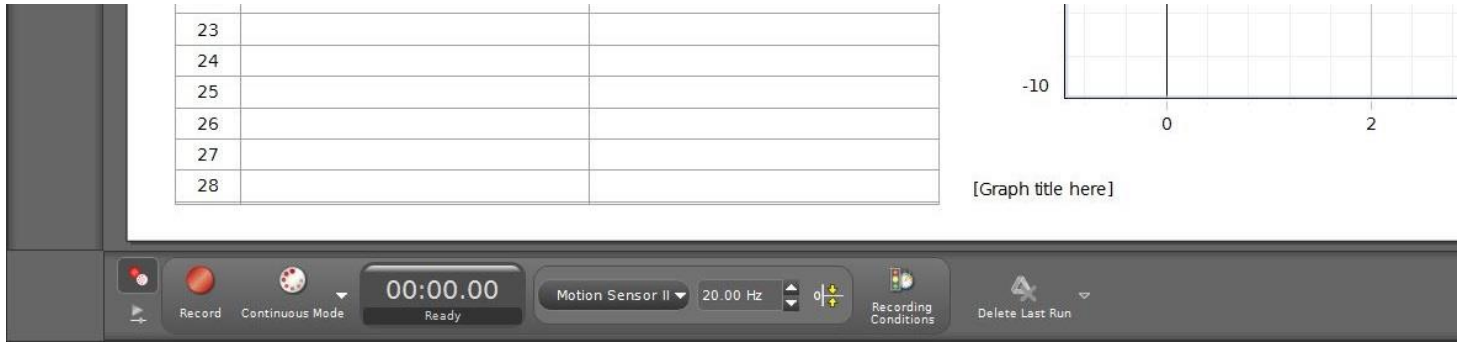
The PASCO Interface will allow different measuring devices. To plug in the motion sensor, right-click on the left-most digital input, then scroll down and select the [Motion Sensor II].



The motion sensor has two plugs.

- The yellow plug should be in digital-input 1.
- The black plug should be in digital-input 2.


Untitled.cap*
File Edit Workbook Display Journal Help
Page #1
Tools
Hardware Setup
Data Summary
Calibration
Calculator
Signal Generator
[Table title here]
<No Data Selected>
Time (s)
Position (m)
Displays
Graph
Scope
FFT
Histogram
Digits
Meter
Table
Text Box
Text Entry Box
Image
Movie
<Select Measurement>
Add Similar Measurement
QuickCalc
Motion Sensor II
Position (m)
Velocity (m/s)
Acceleration (m/s²)
Equations/Constants
Constants
Time
Time (s)
Index
Index
Time (s)
[Graph title here]
Click each <Select Measurement>
In the pop-up menu, select the appropriate variable.
Record
Continuous Mode
00:00.00
Ready
Motion Sensor II
20.00 Hz
Recording Conditions
Delete Last Run
Controls

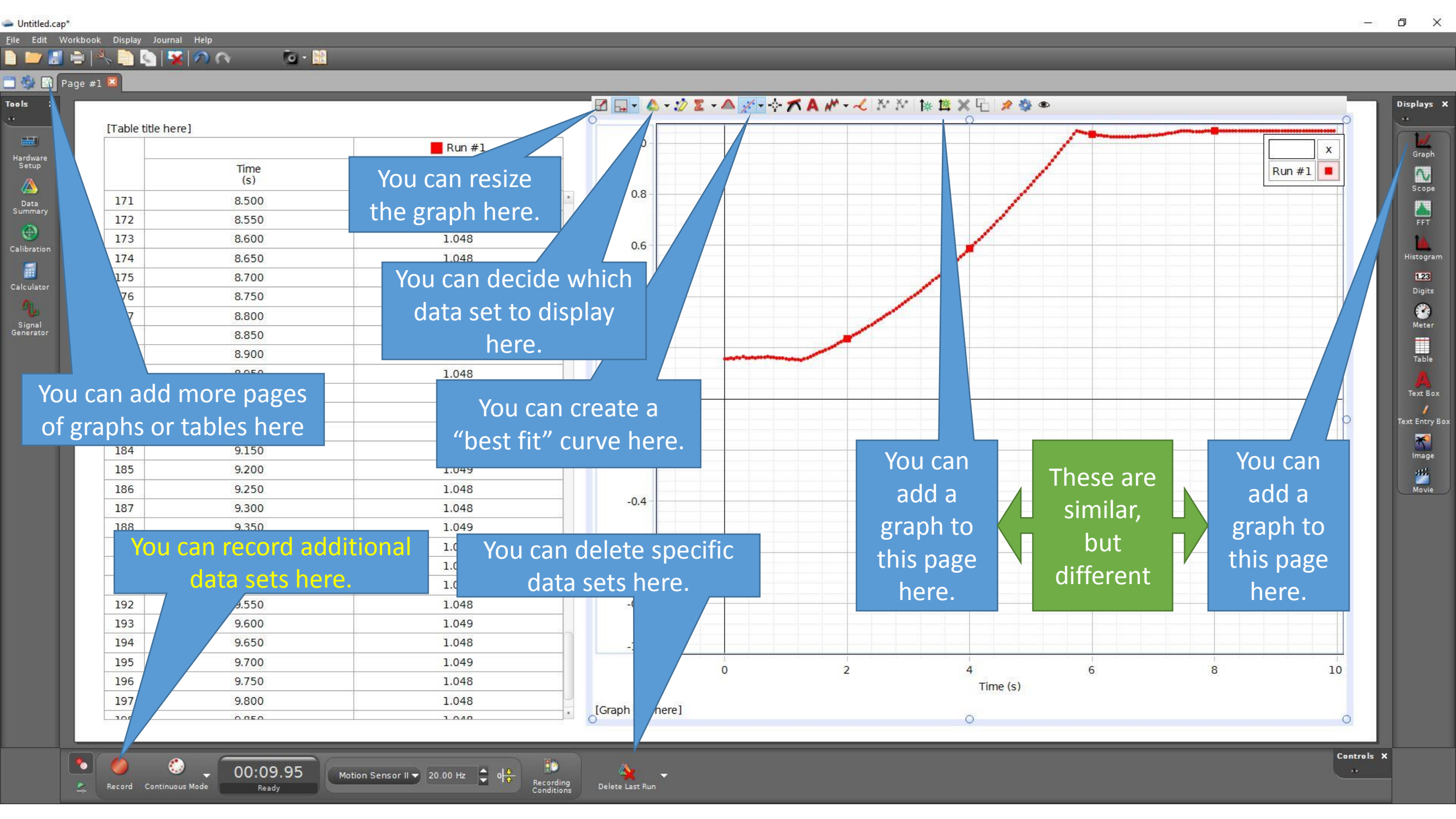


When you are ready, click [Record] to begin collecting data.

The [Record] button will become a [Stop] button while the data is being collected.

The graphs and table should fill with data as it is collected.

When you are done, click [Stop] to end the data collection.


Untitled.cap*
File Edit Workbook Display Journal Help
Page #1
Tools
Hardware Setup
Data Summary
Calibration
Calculator
Signal Generator
[Table title here]
Time (s)
Run #1
171 8.500
172 8.550
173 8.600 1.048
174 8.650 1.048
175 8.700
176 8.750
8.800
8.850
8.900
1.048
184 9.150
185 9.200
186 9.250 1.048
187 9.300 1.048
188 9.350 1.049
192 9.550 1.048
193 9.600 1.049
194 9.650 1.048
195 9.700 1.049
196 9.750 1.048
197 9.800 1.048
You can resize the graph here.
You can decide which data set to display here.
You can add more pages of graphs or tables here
You can create a “best fit” curve here.
You can record additional data sets here.
You can delete specific data sets here.
You can add a graph to this page here.
These are similar, but different
You can add a graph to this page here.
x
Run #1
0.8
0.6
-0.4
0
2
4
6
8
10
Time (s)
[Graph here]
Displays
Graph
Scope
FFT
Histogram
Digits
Meter
Table
Text Box
Text Entry Box
Image
Movie
Record
Continuous Mode
00:09.95
Ready
Motion Sensor II
20.00 Hz
Recording Conditions
Delete Last Run
Controls

Untitled.cap*

File Edit Workbook Display Journal Help

Page #1

Tools

Hardware Setup
Data Summary
Calibration
Calculator
Signal Generator

[Table title here]

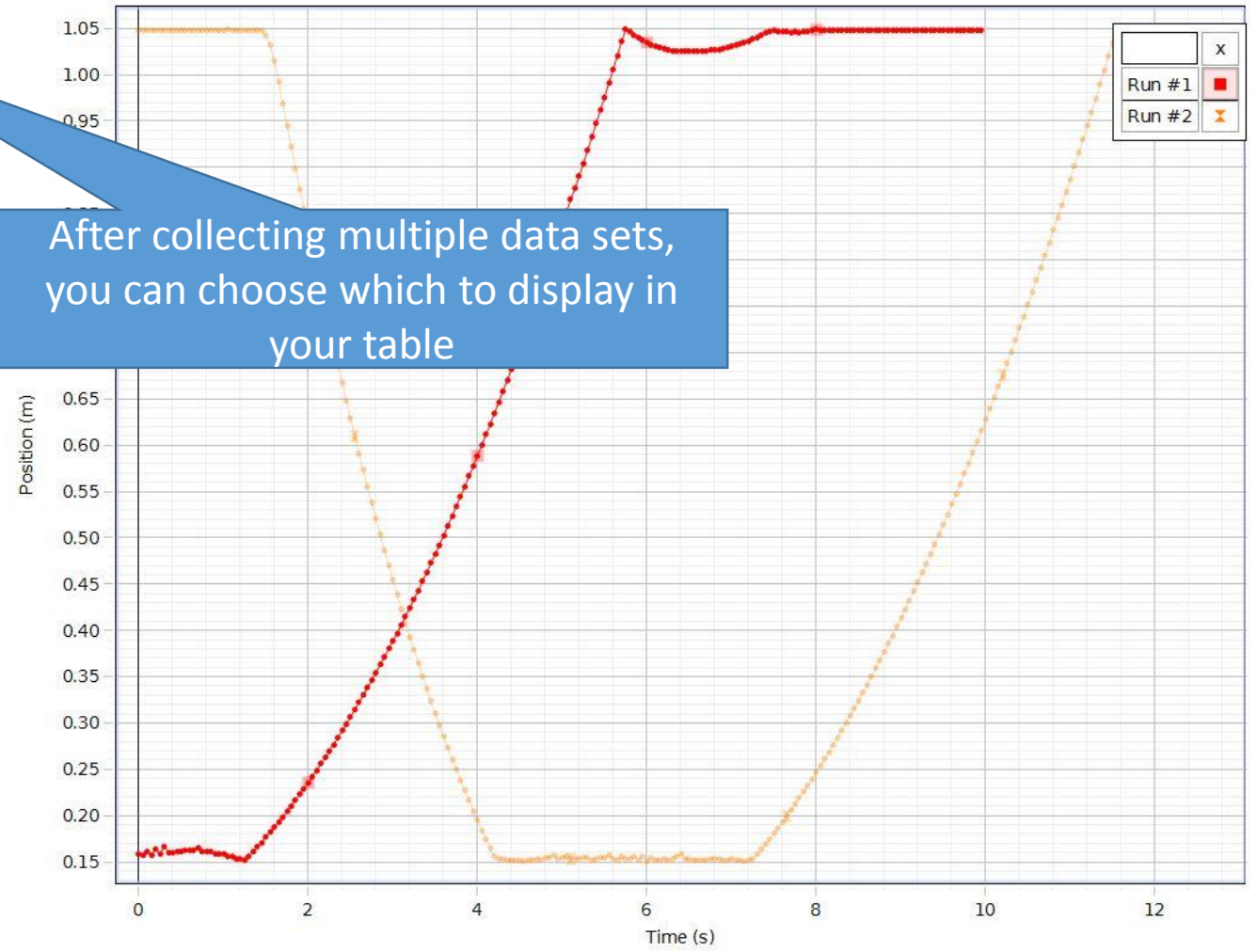
	Time (s)	Run #2
	1.400	
		1.049
	1	1.045
	11.850	1.023
		1.020
		1.016
		1.014
		1.011
243	12.100	1.008
244	12.150	1.006
245	12.200	1.004
246	12.250	1.003
247	12.300	1.001
248	12.350	1.000
249	12.400	1.000
250	12.450	0.999
251	12.500	0.999
252	12.550	0.999
253	12.600	0.999
254	12.650	1.000
255	12.700	1.000

Run #2
Rename
<No Data Selected>
Run #1
Run #2

This button allows you to remove a column from your table

This button allows you to add a new column to your table

After collecting multiple data sets, you can choose which to display in your table



[Graph title here]

Displays

Graph
Scope
FFT
Histogram
Digits
Meter
Table
Text Box
Text Entry Box
Image
Movie

Record
Continuous Mode
00:12.80
Ready
Motion Sensor II
20.00 Hz
Recording Conditions
Delete Last Run

Controls

Untitled.cap*

File Edit Workbook Display Journal Help

Page #1

Tools

Hardware Setup
Data Summary
Calibration
Calculator
Signal Generator

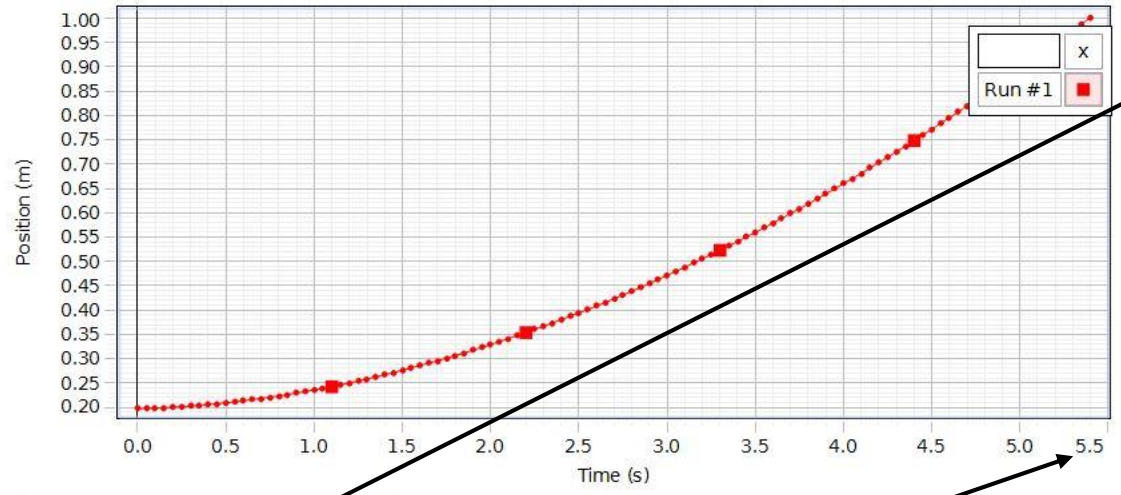
[Table title here]

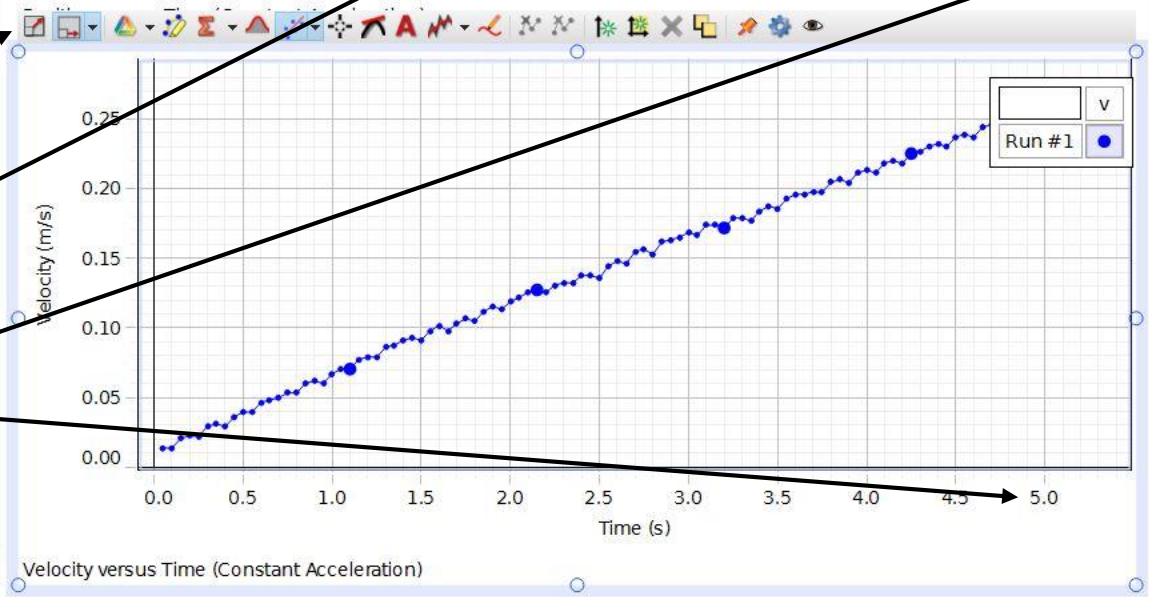
		Run #1	Run #1
	Time (s)	Position (m)	Velocity (m/s)
81	4.000	0.660	0.21
82	4.050	0.670	0.21
83	4.100	0.681	0.22
84	4.150	0.692	0.22
85	4.200	0.703	0.22
86	4.250	0.714	0.23
87	4.300	0.725	0.23
88	4.350	0.737	0.23
89	4.400	0.748	0.23
107	5.300	0.974	0.27
108	5.350	0.988	0.28

This shows one data set, but with multiple variables (position and velocity). Note that both are labelled as “Run #1” in both the table and the graph.

I had to insert a new column into the table to allow the velocity data to be included.

I created the second graph using the Display-Palette on the far right, which means that the velocity graph has its own menu and can be re-sized independently of the position graph.





Displays

Graph
Scope
FFT
Histogram
Digits
Meter
Table
Text Box
Text Entry Box
Image
Movie

Record
Continuous Mode
00:05.40
Ready
Motion Sensor II
20.00 Hz
Recording Conditions
Delete Last Run

Controls

Untitled.cap*

File Edit Workbook Display Journal Help

Page #1

Tools

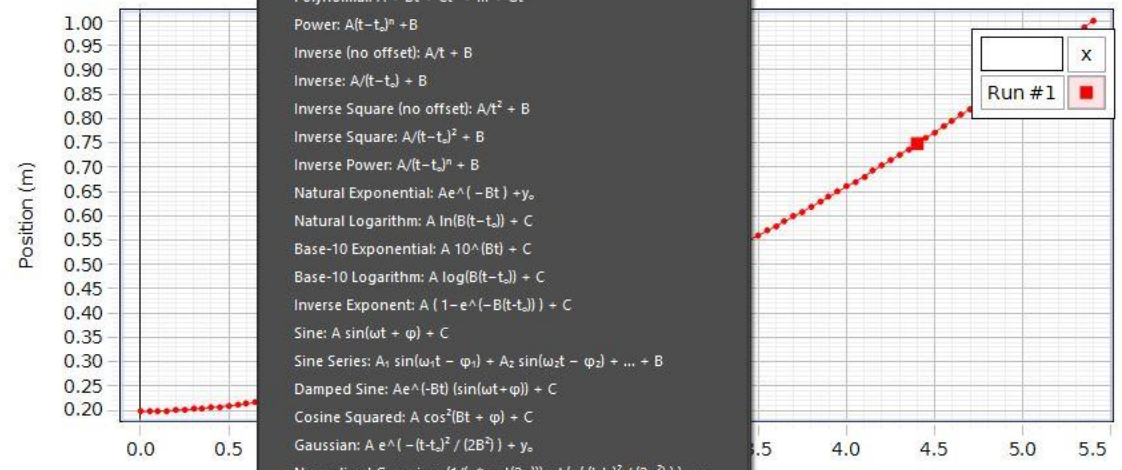
Hardware Setup
Data Summary
Calibration
Calculator
Signal Generator
Curve Fit Editor

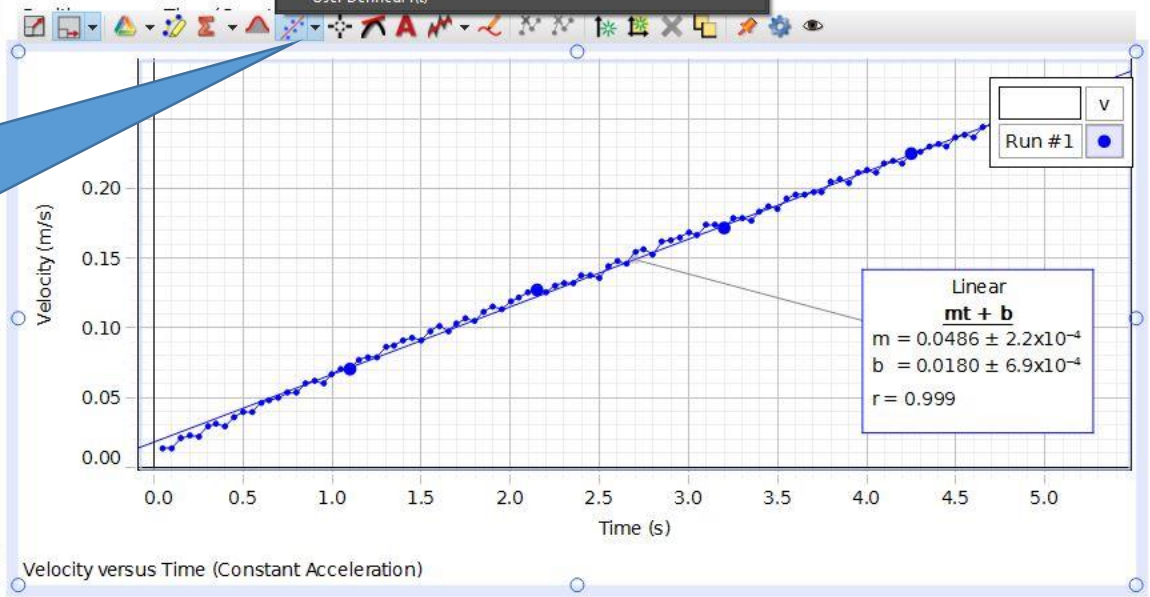
[Table title here]

		Run #1	Run #1
	Time (s)	Position (m)	Velocity (m/s)
81	4.000	0.660	0.21
82	4.050	0.670	0.21
83	4.100	0.681	0.22
84	4.150	0.692	0.22
85	4.200	0.703	0.22
86	4.250	0.714	0.23
87	4.300	0.725	0.23
88	4.350	0.737	0.23
89	4.400	0.748	0.23
90	4.450	0.760	0.23
91	4.500	0.771	0.24
92	4.550	0.783	0.24
93	4.600	0.795	0.24
94	4.650	0.807	0.24
95	4.700		
96	4.750		
97	4.800		
98	4.850		
99	4.900		
100	4.950		
101	5.000		
102	5.050		
103	5.100		
104	5.150		
105	5.200		
106	5.250		
107	5.300	0.974	0.27
108	5.350	0.988	0.28

When you click here to create a best-fit, you get a menu to select the type of curve to fit the data with. You will usually want either linear or quadratic fit.

- Proportional: At
- ✔ Linear: mt + b
- Weighted Linear: mt + b
- Quadratic: $At^2 + Bt + C$
- Cubic: $A + Bt + Ct^2 + Dt^3$
- Polynomial: $A + Bt + Ct^2 + ... + Gt^6$
- Power: $A(t-t_o)^n + B$
- Inverse (no offset): $A/t + B$
- Inverse: $A/(t-t_o) + B$
- Inverse Square (no offset): $A/t^2 + B$
- Inverse Square: $A/(t-t_o)^2 + B$
- Inverse Power: $A/(t-t_o)^n + B$
- Natural Exponential: $Ae^{(-Bt)} + y_o$
- Natural Logarithm: $A \ln(B(t-t_o)) + C$
- Base-10 Exponential: $A\ 10^{(Bt)} + C$
- Base-10 Logarithm: $A \log(B(t-t_o)) + C$
- Inverse Exponent: $A(1-e^{-B(t-t_o)}) + C$
- Sine: $A \sin(\omega t + \varphi) + C$
- Sine Series: $A_1 \sin(\omega_1 t - \varphi_1) + A_2 \sin(\omega_2 t - \varphi_2) + ... + B$
- Damped Sine: $Ae^{(-Bt)} (\sin(\omega t + \varphi)) + C$
- Cosine Squared: $A \cos^2(Bt + \varphi) + C$
- Gaussian: $A e^{(-(t-t_o)^2 / (2B^2))} + y_o$
- Normalized Gaussian: $(1/(\sigma * \sqrt{2\pi})) e^{(-(t-t_o)^2 / (2\sigma^2))} + y_o$
- User Defined: f(t)





Displays

Graph
Scope
FFT
Histogram
Digits
Meter
Table
Text Box
Text Entry Box
Image
Movie

Record
Continuous Mode
00:05.40
Ready
Motion Sensor II
20.00 Hz
Recording Conditions
Delete Last Run

Controls

Untitled.cap*

File Edit Workbook Display Journal Help

Page #1

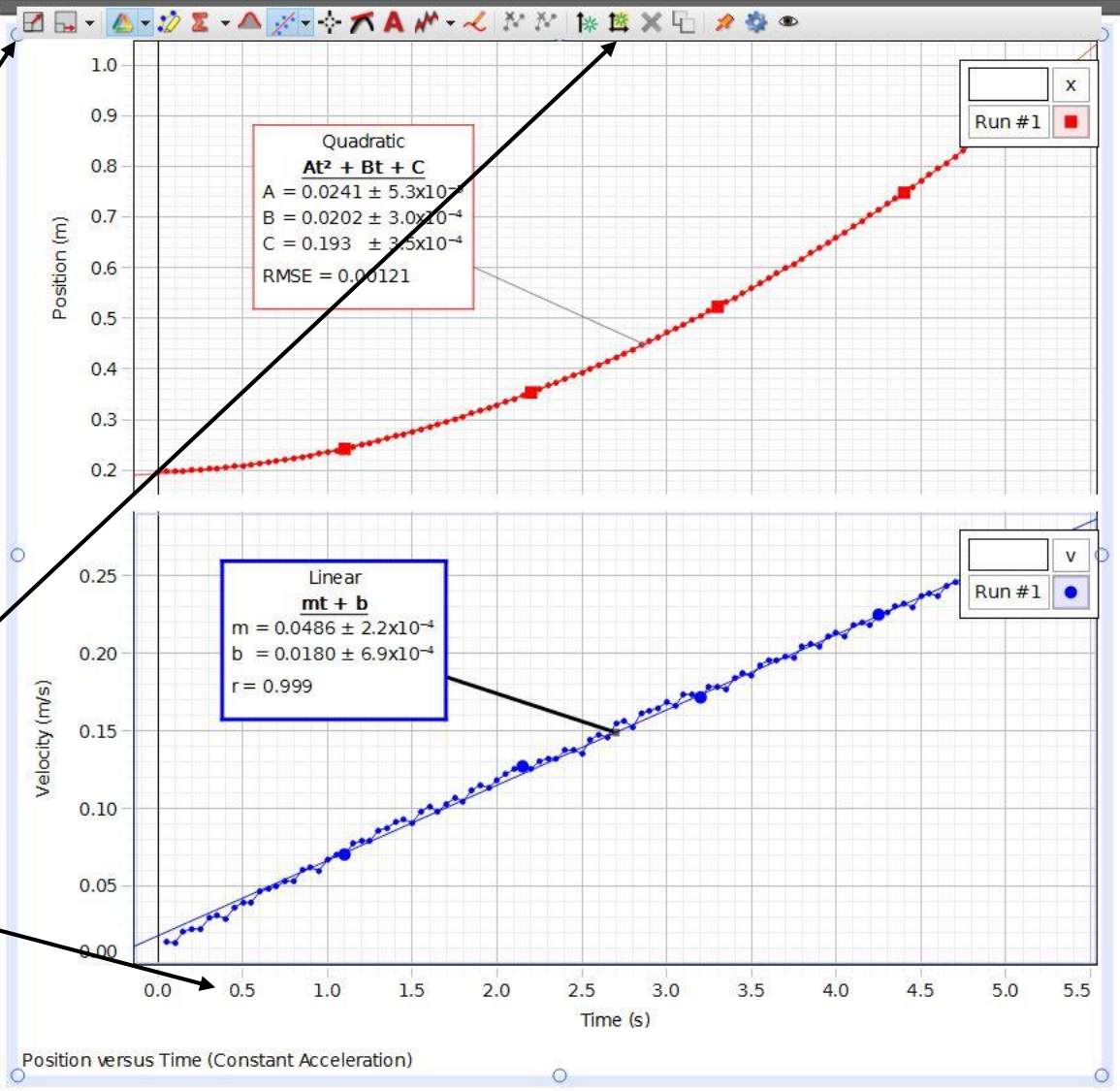
[Table title here]

		Run #1	Run #1
	Time (s)	Position (m)	Velocity (m/s)
81	4.000	0.660	0.21
82	4.050	0.670	0.21
83	4.100	0.681	0.22
84	4.150	0.692	0.22
85	4.200	0.703	0.22
86	4.250	0.714	0.23
87	4.300	0.725	0.23
88	4.350	0.737	0.23
89	4.400	0.748	0.23
107	5.300	0.974	0.27
108	5.350	0.988	0.28

This shows one data set, but with multiple variables (position and velocity). Note that both are labelled as “Run #1” in both the table and the graph.

I had to insert a new column into the table to allow the velocity data to be included.

I created the second graph using the insert graph menu option, which means that both graphs are controlled by the same menu and will be scaled together.



Tools: Hardware Setup, Data Summary, Calibration, Calculator, Signal Generator, Curve Fit Editor

Displays: Graph, Scope, FFT, Histogram, Digits, Meter, Table, Text Box, Text Entry Box, Image, Movie

Record | Continuous Mode | 00:05.40 Ready | Motion Sensor II | 20.00 Hz | Recording Conditions | Delete Last Run | Controls