User Manual for HP 34401A Control and Datalogging Software.
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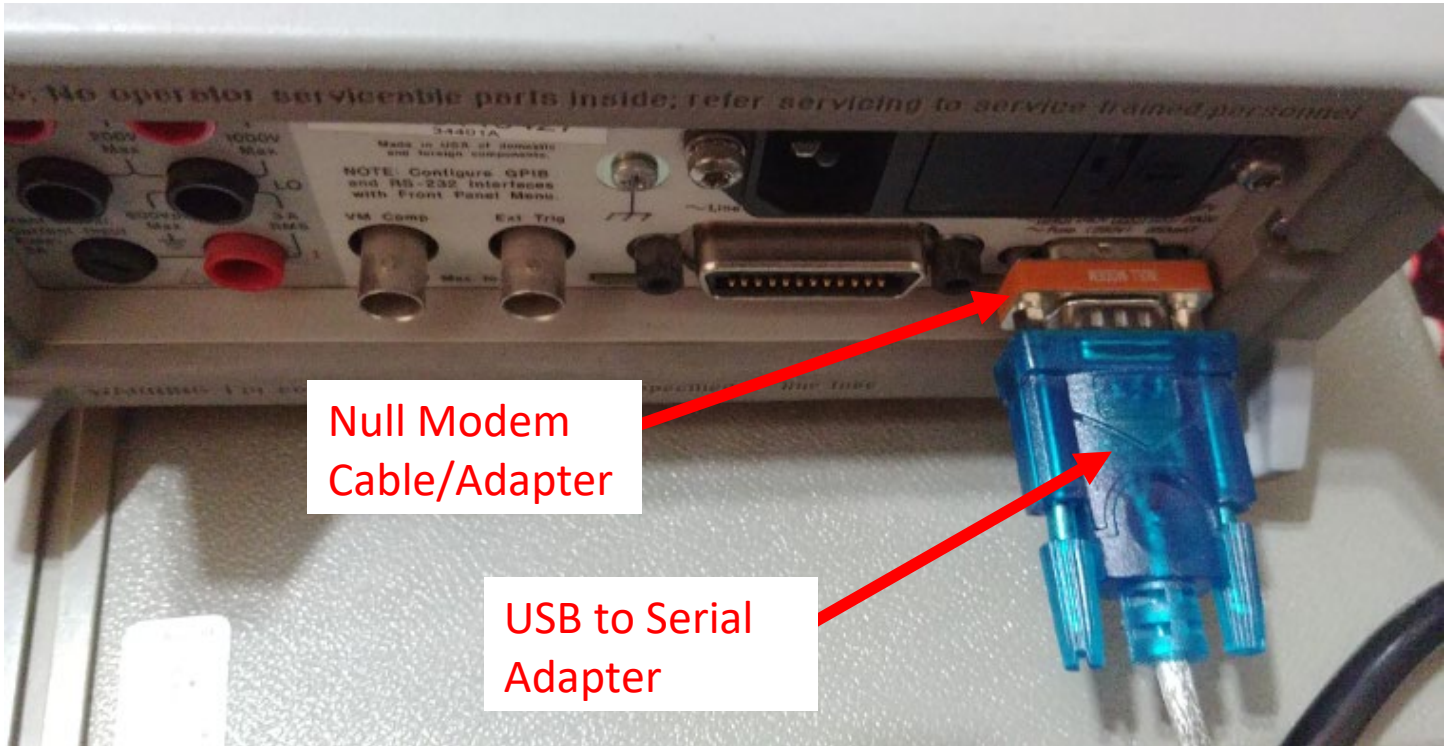
Table of Contents

You will need a HP/Agilent/Keysight 34401A to use this software. There are two versions of this software. One is built for RS232 Serial Port and the other one is for GPIB Port, you will need a AR488 Arduino GPIB Adapter to utilize the GPIB Port.

RS232 Serial Port Setup


Null Modem Cable/Adapter

USB to Serial Adapter

A USB to Serial Adapter and a Null Modem cable/adapter are required if you want to use the 34401A's RS232 Serial Port. Use the RS232 version of the Software if you decide to go this way.
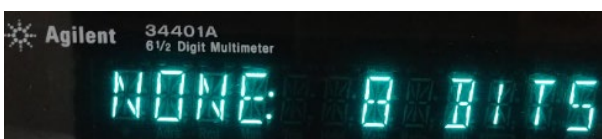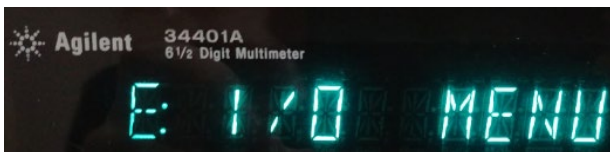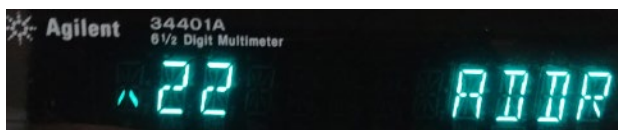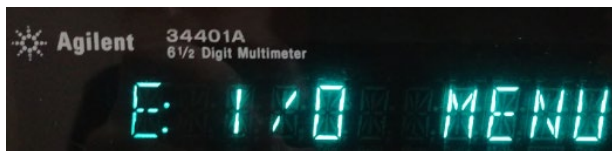

Navigate to the I/O menu and set interface to RS-232, Baud rate to 9600, Parity and Data bits to None: 8 Bits. Also make sure language is set to SCPI.

Then, run the RS-232 version of the software and follow the instructions.

AR488 Arduino GPIB Setup

AR488 Arduino GPIB Adapter
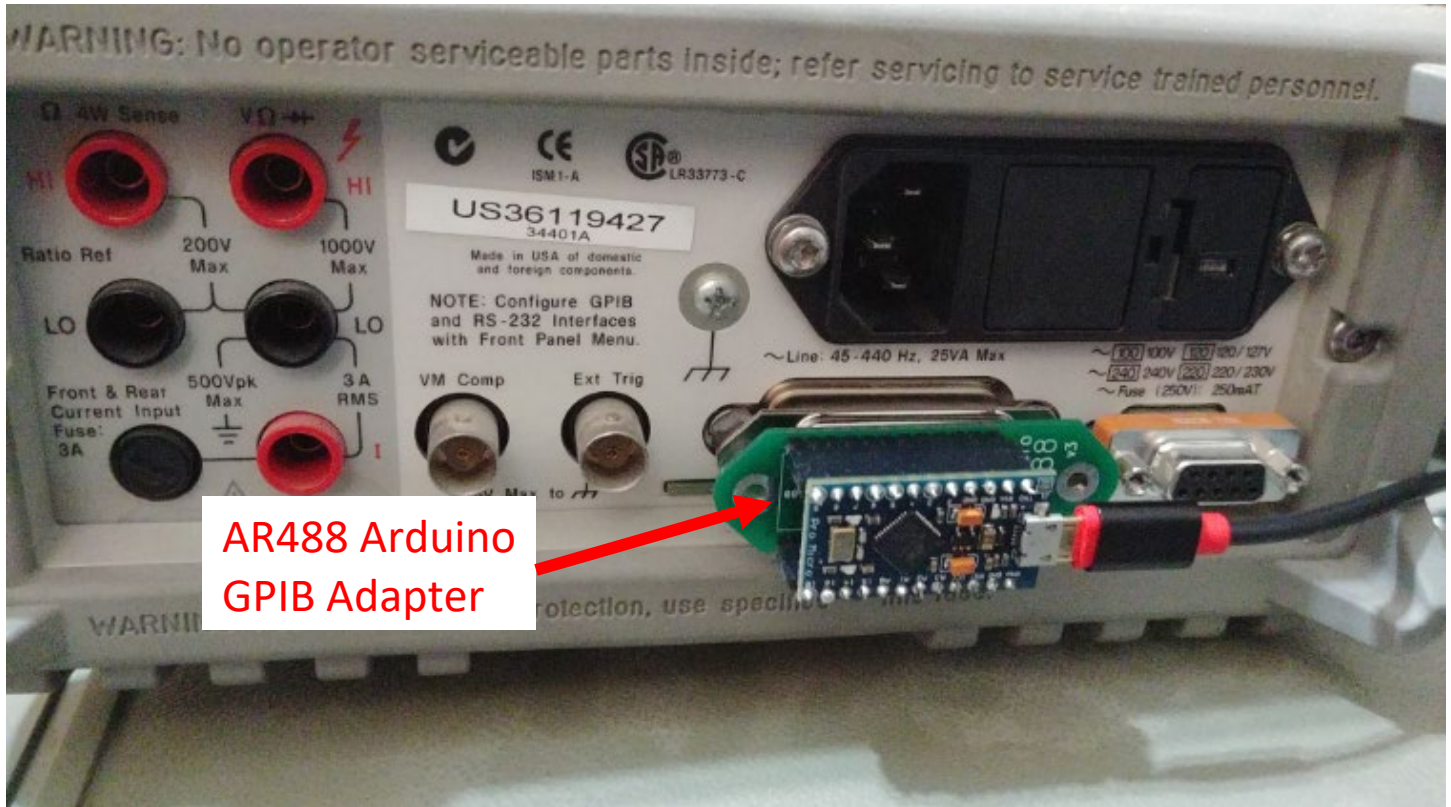
An AR488 Arduino GPIB Adapter is require if you wish to utilize the 34401A's GPIB Port. Use the AR488 GPIB version of the Software if you decide to go this way.

Navigate to the I/O menu and set Address to 22 (Optional). Then set interface to HP-IB / 488. After that set language to SCPI.

Then, run the AR488 Arduino GPIB version of the software and follow the instructions.

Features of the Measurement Table

#	Date Time	Measurement	Unit
300	2021-05-10 1:08:43 AM	-2.004	VDC
301	2021-05-10 1:08:43 AM	-2.02	VDC
302	2021-05-10 1:08:43 AM	-2.027	VDC
303	2021-05-10 1:08:43 AM	-2.004	VDC
304	2021-05-10 1:08:43 AM	-1.951	VDC
305	2021-05-10 1:08:43 AM	-1.869	VDC
306	2021-05-10 1:08:43 AM	-1.76	VDC
307	2021-05-10 1:08:43 AM	-1.625	VDC
308	2021-05-10 1:08:43 AM	-1.54	VDC
309	2021-05-10 1:08:43 AM	-1.363	VDC
310	2021-05-10 1:08:43 AM	-1.171	VDC
311	2021-05-10 1:08:43 AM	-0.964	VDC
312	2021-05-10 1:08:43 AM	-0.741	VDC
313	2021-05-10 1:08:43 AM	-0.507	VDC
314	2021-05-10 1:08:43 AM	-0.269	VDC
315	2021-05-10 1:08:43 AM	-0.146	VDC
316	2021-05-10 1:08:43 AM	0.097	VDC
317	2021-05-10 1:08:43 AM	0.335	VDC
318	2021-05-10 1:08:43 AM	0.568	VDC
319	2021-05-10 1:08:43 AM	0.787	VDC
320	2021-05-10 1:08:43 AM	0.995	VDC
321	2021-05-10 1:08:43 AM	1.194	VDC
322	2021-05-10 1:08:43 AM	1.373	VDC

HP 3478A COM5

File   Table   Table Colors

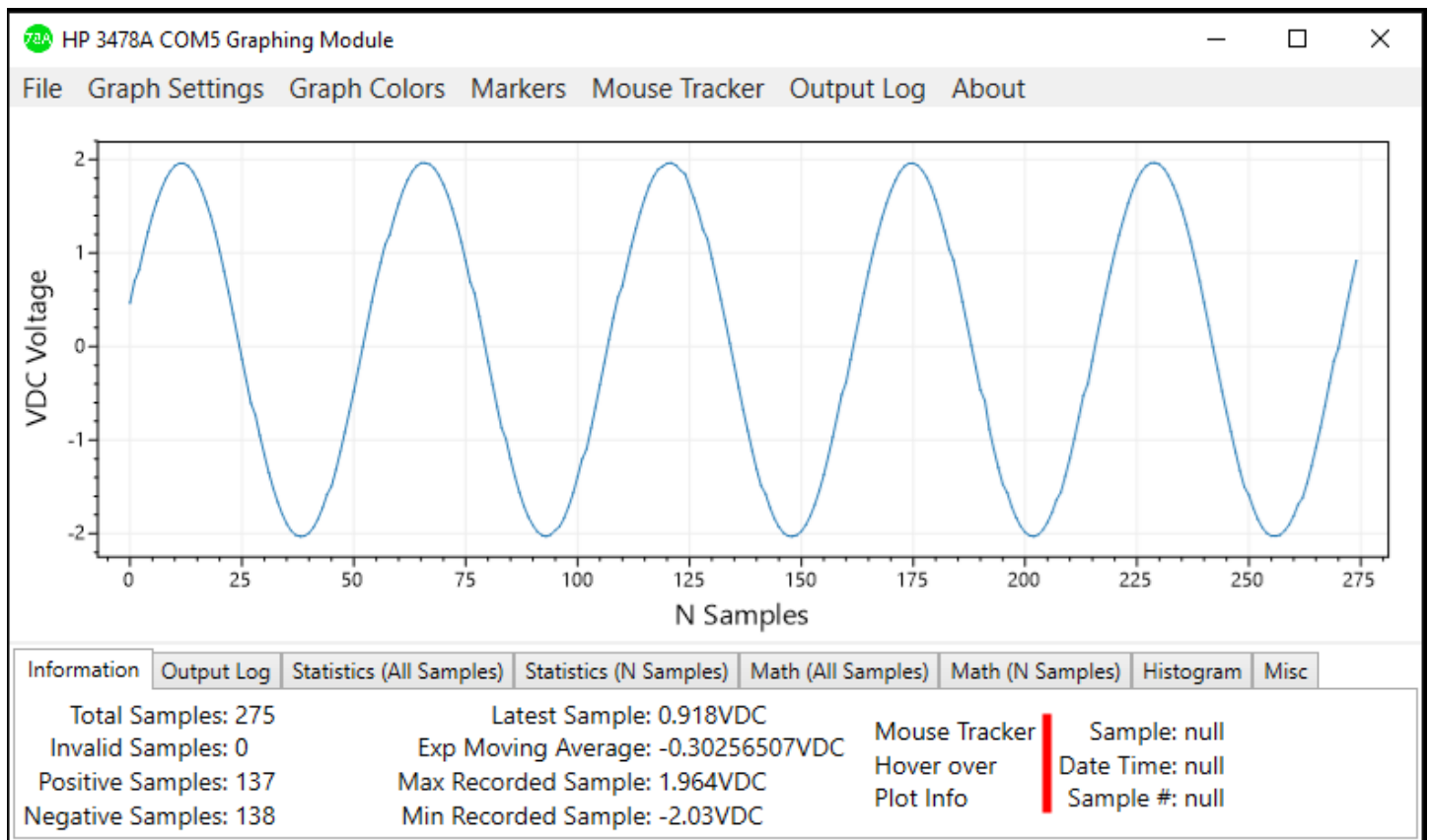Total Measurement: 322

Set the Table's Cell's colors.

You can clear the table from here.

Data is displayed in cells. These cells can be edited.

Save data from the table into text file or CSV file.

Features of the Graphing Module

The graphing module is the main feature of the software. You can pan, zoom and highlight an area and zoom into it. The graph has natural pan and zoom capabilities, like how you can zoom and pan in Google Maps. There are too many features for me to list them here. You can reset the graph by going to Graph Settings then click Reset Graph.

Sample information is displayed here, you can get the date and time of each sample by Enabling the Mouse Tracker from the mouse tracker menu.

Important information will be displayed here. You can save the contents of this log by going to the Output Log menu.

Information	Output Log	Statistics (All Samples)	Statistics (N Samples)	Math (All Samples)	Math (N Samples)	Histogram	Misc

Mean (Average): Calculate |Max| Sample: Calculate   Geometric Mean: Calculate   Mean Std Deviation: Calculate

Std Deviation: Calculate |Min| Sample: Calculate   Harmonic Mean: Calculate   Mean Variance: Calculate

Max Sample: Find   Root Mean Square: Calculate   Pop Variance: Calculate

Min Sample: Find   Variance: Calculate   Pop Std Deviation: Calculate

Get statistics for all the samples captures so far.

Information	Output Log	Statistics (All Samples)	Statistics (N Samples)	Math (All Samples)	Math (N Samples)	Histogram	Misc

N Samples [Start , End]   Max Sample: Find   Root Mean Square: Calculate   Pop Variance: Calculate

0 , 50   Min Sample: Find   Variance: Calculate   Pop Std Deviation: Calculate

Mean (Average): Calculate |Max| Sample: Calculate   Geometric Mean: Calculate   Mean Std Deviation: Calculate

Std Deviation: Calculate |Min| Sample: Calculate   Harmonic Mean: Calculate   Mean Variance: Calculate

Get statistics for select few samples. You can enable vertical markers to help you with selecting the start and ending sample numbers. This will calculate statistics for all the samples between two samples.

Information	Output Log	Statistics (All Samples)	Statistics (N Samples)	Math (All Samples)	Math (N Samples)	Histogram	Misc

Addition (Samples + Value ∨): _____ Calculate   Graph Title: _____

Subtraction (Samples - Value ∨): _____ Calculate   Y-Axis Label: _____

Multiplication (Samples * Value ∨): _____ Calculate   Graph Color: [green] 50 255 30 Set Randomize

Division (Samples / Value ∨): _____ Calculate

Create Math Waveforms with all the samples captured so far.

Information	Output Log	Statistics (All Samples)	Statistics (N Samples)	Math (All Samples)	Math (N Samples)	Histogram	Misc

Addition (Samples + Value ∨): _____ Calculate   N Samples (Start, End): _____ , _____

Subtraction (Samples - Value ∨): _____ Calculate   Graph Title: _____

Multiplication (Samples * Value ∨): _____ Calculate   Y-Axis Label: _____

Division (Samples / Value ∨): _____ Calculate   Graph Color: [blue] 30 144 255 Set Randomize

Create Math Waveforms for select few samples. This will create a math waveform for all the samples between two samples.

Information	Output Log	Statistics (All Samples)	Statistics (N Samples)	Math (All Samples)	Math (N Samples)	Histogram	Misc

[All Samples]: Calculate   Bin Size: 0.1   Plot Curve: ☐

[N Samples (Start, End)]: Calculate   Bar Width: 0   Graph Title: _____

_____ , _____   Bar Border Thickness: 1   X-Axis Label: _____

Graph Color: [blue] 30 144 255 Set Randomize

Create Histogram for all the samples or for select few samples. Make sure to type the appropriate bin size.

Information	Output Log	Statistics (All Samples)	Statistics (N Samples)	Math (All Samples)	Math (N Samples)	Histogram	Misc

Δ Time [All Samples]: Seconds ∨ Calculate

Δ Time [N Samples (Start, End)]: Seconds ∨ Calculate

_____ , _____

Calculate the time different between two samples. The All-Samples option will calculate time difference between the first sample and the current last sample.
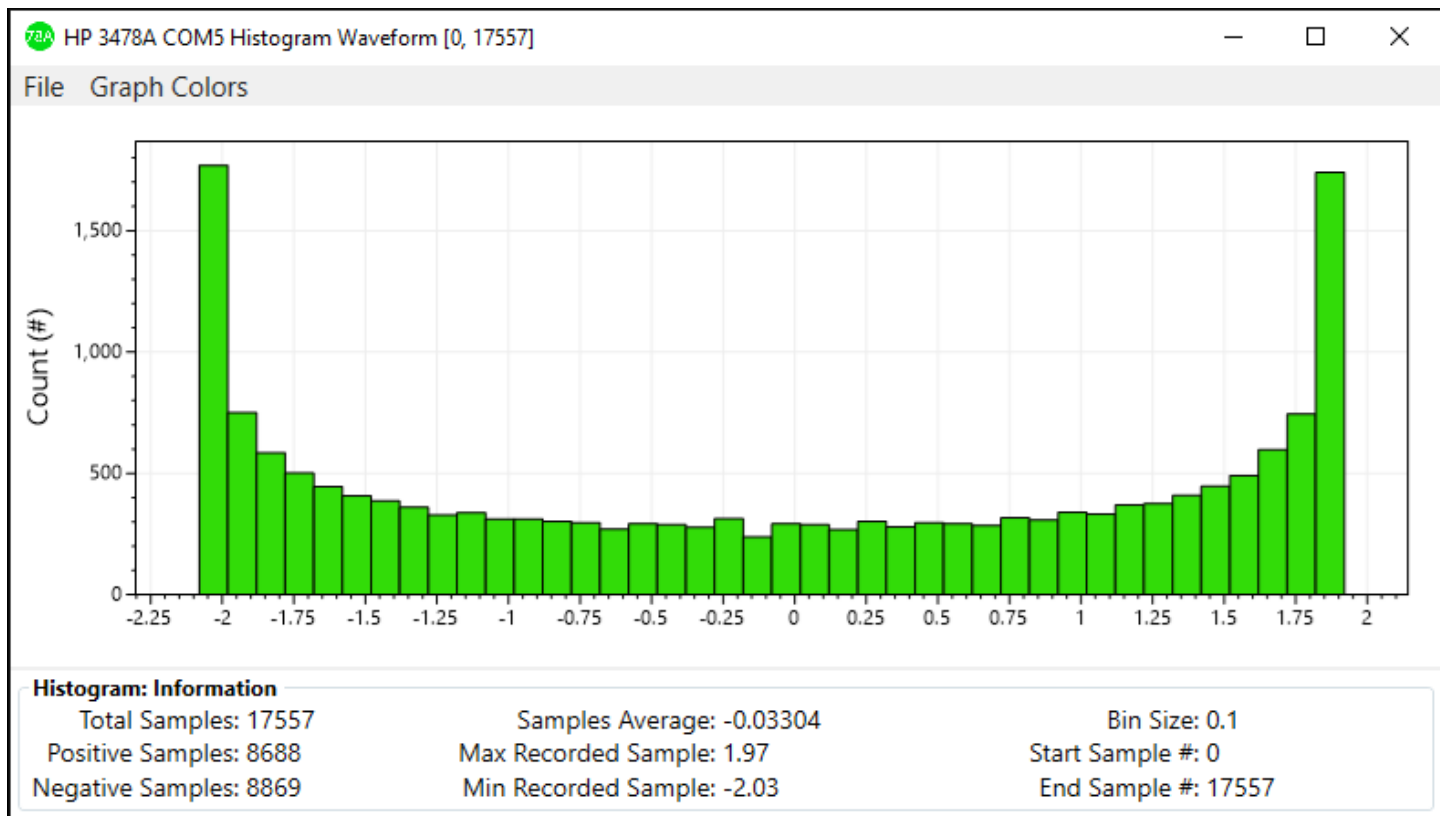
You can create Histogram from all the samples or for select few samples. Pan, zoom, and zoom to highlighted area is also possible.