

RIGOL
Beyond Measure



Simple Control Excel Program

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Solution: The Rigol SimpleControl_VISA_DSA is designed to allow user's that own Microsoft Excel(c) 2010 or greater the ability to control a Rigol Digital Spectrum Analyzer using the built in VBA (Visual Basic for Applications) tools.

NOTE: The program is compatible with the DSA 800, 1000, and 1000A spectrum analyzers.

The basic code allows you to:

- Search the available USB, GPIB, and RS-232 buses for instruments.
- Select a Rigol DSA
- Perform an identification query (IDN?)
- Return active Trace 1 data
- Return stored trace data. You can retrieve any files stored as BIN to the internal storage of the instrument. These files terminate with “.trc”.

NOTE: The program utilizes NI-VISA for communications and requires that NI-VISA is installed on the computer used for control.

1. Install all necessary software, including NI-VISA and Microsoft Excel.
2. Download and install the SimpleContol spreadsheet (*.xlsm)
3. Connect the instrument power cord and communication cable.

rigolna.com

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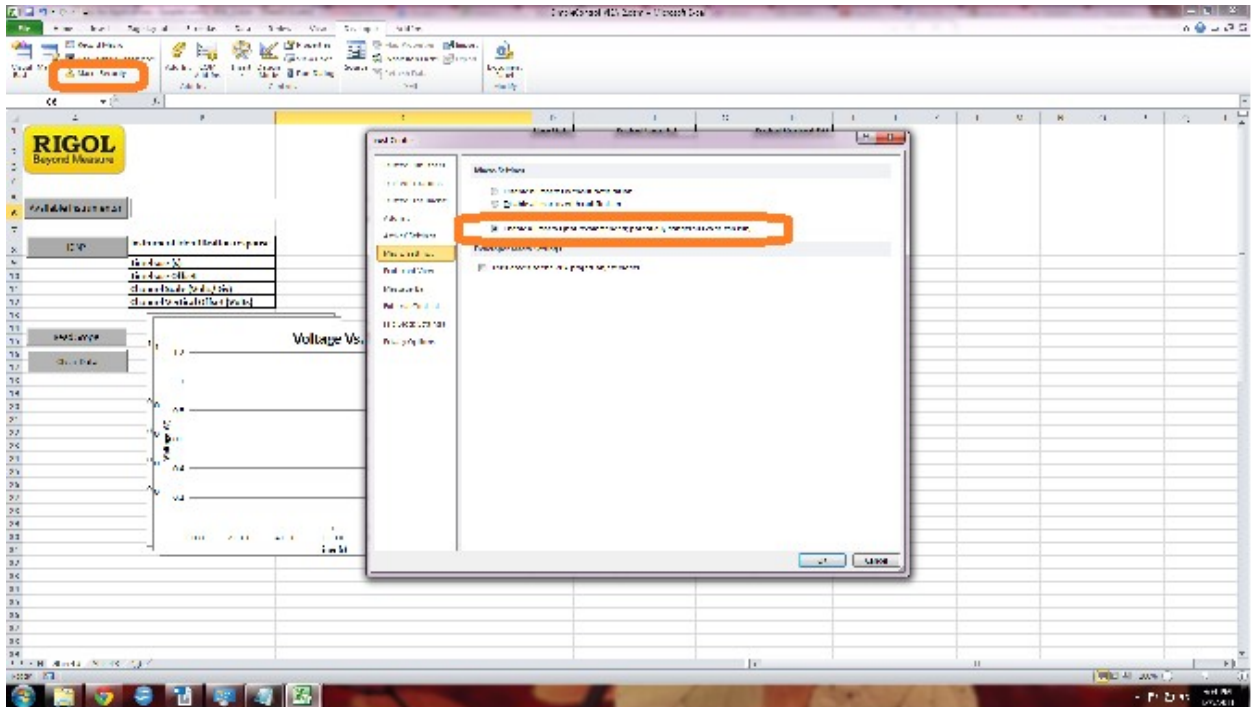
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4. Open the SimpleControl Spreadsheet.

NOTE: The SimpleControl Program utilizes Macros. You will need to enable Macro's for Excel in order to successfully use the program. See the following figure for the location of Macro controls. Be cautious, as enabling Macros can allow easier entry for viruses to your system.





- 6. Click on the button labeled Available Instruments. This command will search through the USB, GPIB, and Serial buses for instruments that are connected.



7. Using the drop-down box, select the address for the instrument you are interested in controlling.

NOTE: DSA addresses can be found using the “DSA” string element in the Serial Number element in their VISA address.
See below for an example.

DSA1030A connected via USB: “USB0::0x0400::0x09C4::**DSA**1A124400151::INSTR”



8. Select the IDN? Button to request an identification string from the instrument. A typical IDN? Return is shown below.

	A	B	C	D
1				Frequency (Hz)
2		Valid Instruments	DSA-1000, DSA-1000A Spectrum Analyzer	
3				
4				
5				
6	Available Instruments?	USB0::0x0400::0x09C4::DSA1A124400151::INSTR		
7				
8	IDN?	Instrument Identification response	Rigol Technologies,DSA1030A,DSA1A124400151,00.01.04.01.03	
9		Start Frequency (Hz)		
10		Stop Frequency (Hz)		
11		Span (Hz)		
12		Step (Hz)		
13				
14	Load Trace	Trace Name (*.trc)		
15				
16				
17	Read Trace			
18				
19	Clear Data			
20				
21				
22				



9. To take instant readings of traces, manually configure the DSA to the proper settings for capturing the signal of interest. Once the trace is displayed, it can be retrieved using the Read Trace button. Here is a sample waveform:

	A	B	C	D	E	F	G
1		Valid Instruments	DSA-1000, DSA-1000A Spectrum Analyzer	Frequency (Hz)	1972333333	Scaled Vertical (dBm)	-7.08E+01
2					1972350000		-7.15E+01
3					1972366666		-7.20E+01
4					1972383333		-7.47E+01
5					1972400000		-7.07E+01
6	Available Instruments?	USB0:014002f0c4e0d5a1a12440015110NS10			1972416666		-7.42E+01
7					1972433333		-7.54E+01
8	IDN?	Instrument Identification response	Rigol Technologies,DSA1000A,DSA1A124400151,00.01.04.01.03		1972450000		-7.55E+01
9		Start Frequency (Hz)	1972333333		1972466666		-7.38E+01
10		Stop Frequency (Hz)	1982333333		1972483333		-6.97E+01
11		Span (Hz)	10000000		1972500000		-7.51E+01
12		Step (Hz)	16000.00002		1972516666		-7.61E+01
13					1972533333		-6.91E+01
14	Load Trace	Trace Name (*.trc)			1972550000		-7.71E+01
15					1972566666		-7.23E+01
16					1972583333		-7.71E+01
17					1972600000		-7.33E+01
18					1972616666		-7.21E+01
19					1972633333		-7.28E+01
20					1972650000		-7.31E+01
21					1972666666		-7.22E+01
22					1972683333		-7.04E+01
23					1972700000		-6.97E+01
24					1972716666		-6.93E+01
25					1972733333		-7.23E+01
26					1972750000		-7.03E+01
27					1972766666		-7.11E+01
28			1972783333		-7.23E+01		
29			1972800000		-7.14E+01		
30			1972816666		-7.08E+01		
31			1972833333		-7.17E+01		
32			1972850000		-7.08E+01		
33			1972866666		-7.41E+01		
34			1972883333		-7.40E+01		

- C8 returns the identification string
- C9 returns scan start frequency
- C10 returns scan stop frequency
- Column E returns frequency steps
- Column G returns measured amplitude



10. To retrieve a waveform stored internally, Enter the correct filename in Cell C14 and press the Load Trace button.

- For example, if we had previously stored a file named “1.trc” to the DSA, you would simple enter the number “1” into Cell C14 and press Load Trace as below:

	A	B	C	D	E	F	G
1				Frequency (Hz)	1972333333	Scaled Vertical (dBm)	-7.08E-01
2		Valid Instruments	DSA-1000, DSA-1000A Spectrum Analyzer		1972350000		-7.15E-01
3					1972366666		-7.29E-01
4					1972383333		7.47E+01
5					1972400000		-7.07E-01
6	Available Instruments?	DS1000014000000PC4000541A1244001510005100			1972416666		7.42E+01
7					1972433333		-7.51E-01
8	IDN?	Instrument Identification response	Rigol Technologies, DSA1080A, DSA1A124400151, 00.01.04.01.03		1972450000		7.59E+01
9		Start Frequency (Hz)	1972333333		1972466666		-7.38E-01
10		Stop Frequency (Hz)	1982333333		1972483333		-6.97E-01
11		Span (Hz)	10000000		1972500000		-7.51E-01
12		Step (Hz)	16666.666002		1972516666		-7.61E-01
13					1972533333		-6.91E-01
14	Load Trace	Trace Name (*.trc)	1		1972550000		-7.71E-01
15					1972566666		-7.23E-01
16					1972583333		-7.71E-01
17	Read Trace				1972600000		-7.33E-01
18					1972616666		-7.21E-01
19					1972633333		-7.23E-01
20	Clear Data				1972650000		-7.31E-01
21					1972666666		-7.20E-01
22					1972683333		-7.04E-01
23					1972700000		-6.97E-01
24					1972716666		-6.93E-01
25					1972733333		-7.23E-01
26					1972750000		-7.03E-01
27					1972766666		-7.15E-01
28					1972783333		-7.23E-01
29					1972800000		-7.14E-01
30					1972816666		-7.05E-01
31					1972833333		-7.17E-01
32					1972850000		-7.05E-01
33					1972866666		-7.41E-01
34					1972883333		-7.40E-01
35					1972900000		-7.13E-01

11. Now that the data is in Excel, you can perform many different types of data manipulation and analysis.