

Optical system for assessment of atrial and ventricular mechanics in Langendorff-perfused mouse hearts

Monitoring and Stimulation App Connection and Usage Guide in LabVIEW

Jorge Armenta Valenzuela¹ and Jesus Rodriguez Gonzalez¹

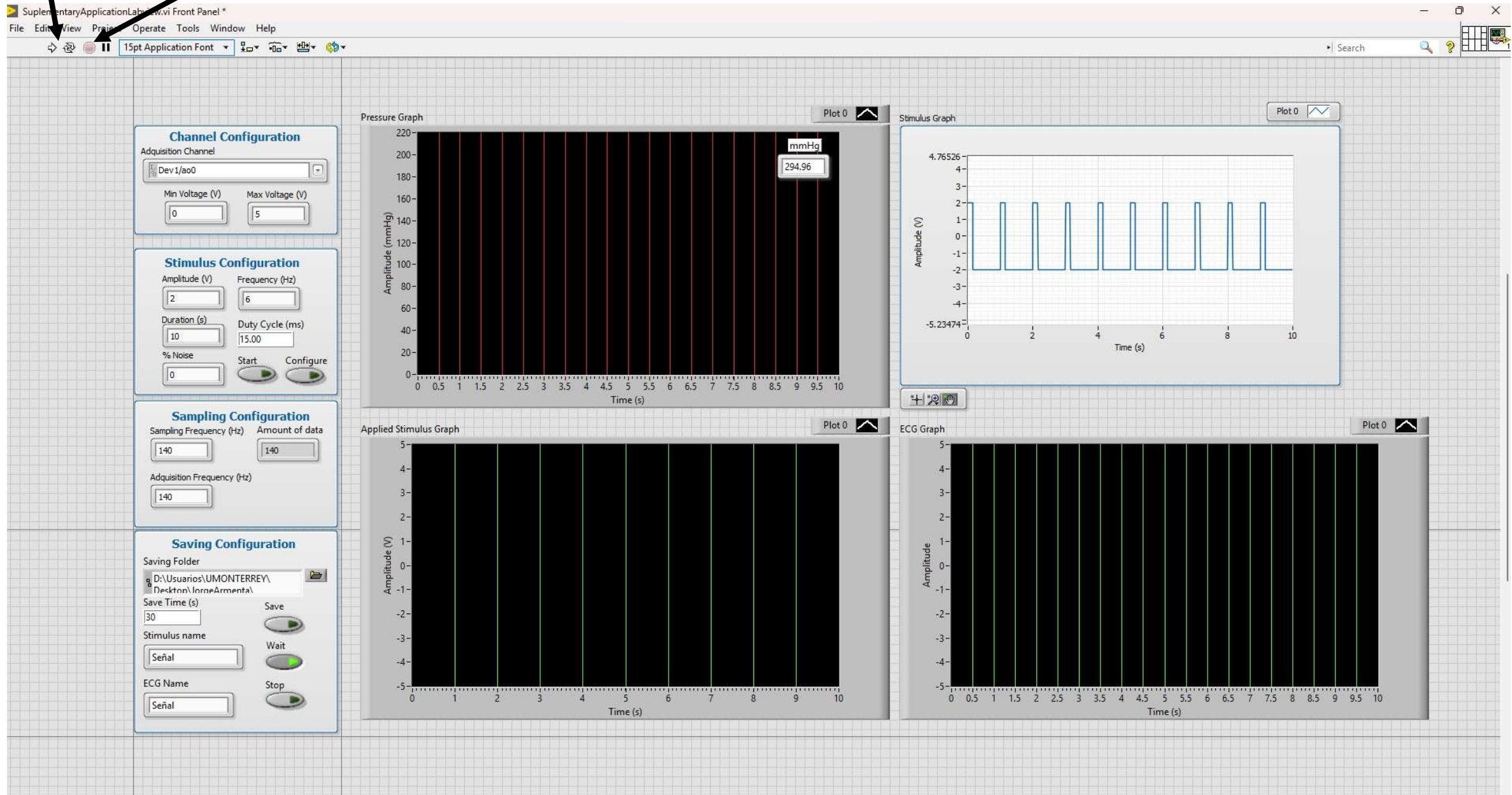
¹Centro de Investigación y de Estudios Avanzados del IPN, Unidad Monterrey, Vía del Conocimiento 201, Parque de Investigación e Innovación Tecnológica, 66600 Apodaca NL, México

* jrodriguez@cinvestav.mx

Click here to start
the application

Click here to stop the
application

First open the LabVIEW Supplemental App, then connect
the USB-6009 acquisition card and turn on the app



Set the stimulation output to ao0, the maximum value to 5, and the minimum to 0

Graph showing coronary pressure in real time

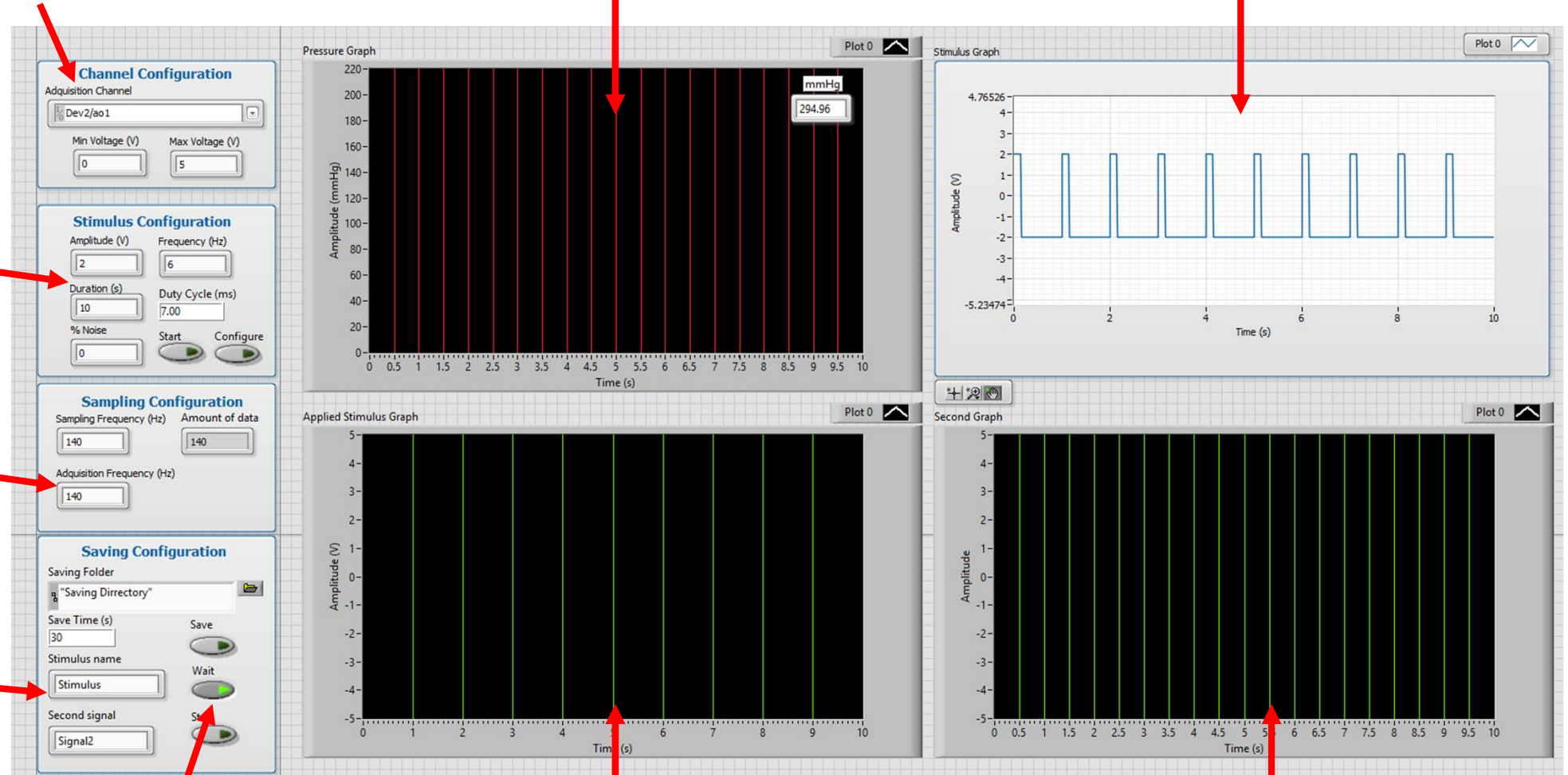
Graph showing the stimulus to be applied

Set the stimulus to apply

Set the sampling frequency to 140 hz

Configure Signal Save Parameters

If the standby button is on, no signal will be saved



Saved signals are saved in .xls with the format below

1	t0	31/12/1903	18:00:00.000000	
2	delta t	0.007143		
3	time	Y		
4	31/12/1903	-0.090109		
5	31/12/1903	-0.088199		
6	31/12/1903	-0.087562		
7	31/12/1903	-0.089472		
8	31/12/1903	-0.082469		
9	31/12/1903	-0.087562		
10	31/12/1903	-0.084379		
11	31/12/1903	-0.088836		
12	31/12/1903	-0.084379		
13	31/12/1903	1.876439		
14	31/12/1903	-0.073557		
15	31/12/1903	-0.090109		
16	31/12/1903	-0.082469		
17	31/12/1903	-0.079923		
18	31/12/1903	-0.086926		
19	31/12/1903	-0.083743		
20	31/12/1903	-0.089472		
21	31/12/1903	-0.081833		
22	31/12/1903	-0.089472		
23	31/12/1903	-0.081196		
24	31/12/1903	-0.084379		
25	31/12/1903	-0.084379		

For the codes in MATLAB to work, they must convert the time (s) format of the signal to the following

Name of the video that matches the signal

The acquisition time must be the last column

1	ResNorCoraSinF15.1(201125)750fps.avi	ResNorCoraSinF16.1(201125)750fps.avi	ResNorCoraSinF17.1(201125)750fps.avi	ResNorCoraSinF18.1(201125)750fps.avi	delta t	0.007143
2	-0.089472	1.879622	-0.086926	1.874529	31/12/1903	-0.081196
3	-0.07865	-0.090109	-0.077376	-0.081196	31/12/1903	-0.084379
4	-0.090109	-0.088836	-0.085016	-0.084379	31/12/1903	-0.089472
5	-0.085653	-0.086926	-0.084379	-0.089472	31/12/1903	-0.082469
6	-0.084379	-0.086926	-0.090746	-0.085016	31/12/1903	-0.087562
7	-0.084379	-0.086289	-0.082469	-0.081833	31/12/1903	-0.088836
8	-0.086926	1.881532	-0.081833	-0.085016	31/12/1903	-0.084379
9	-0.090109	-0.078013	-0.090746	1.876439	31/12/1903	-0.089472
10	-0.088199	-0.085653	1.877076	-0.077376	31/12/1903	-0.081196
11	1.873256	-0.084379	-0.079286	-0.099658	31/12/1903	-0.084379
12	-0.079923	-0.085653	-0.086289	-0.089472	31/12/1903	-0.082469
13	-0.085016	-0.089472	-0.094565	-0.087562	31/12/1903	-0.079923
14	-0.084379	-0.079286	-0.085653	-0.088199	31/12/1903	-0.086926
15	-0.087562	-0.085653	-0.090109	-0.087562	31/12/1903	-0.083743
16	-0.085653	-0.087562	-0.087562	-0.085653	31/12/1903	-0.089472
17	-0.084379	1.878986	-0.087562	1.882169	31/12/1903	-0.081196
18	-0.085653	-0.078013	1.876439	-0.073557	31/12/1903	-0.084379
19	-0.087562	-0.081833	-0.07674	-0.085653	31/12/1903	-0.089472
20	-0.090109	-0.089472	-0.08056	-0.077376	31/12/1903	-0.082469
21	1.877076	-0.088836	-0.085653	-0.088836	31/12/1903	-0.079923
22	-0.081833	-0.087562	-0.085016	-0.090109	31/12/1903	-0.086926
23	-0.087562	-0.084379	-0.086926	-0.083743	31/12/1903	-0.084379

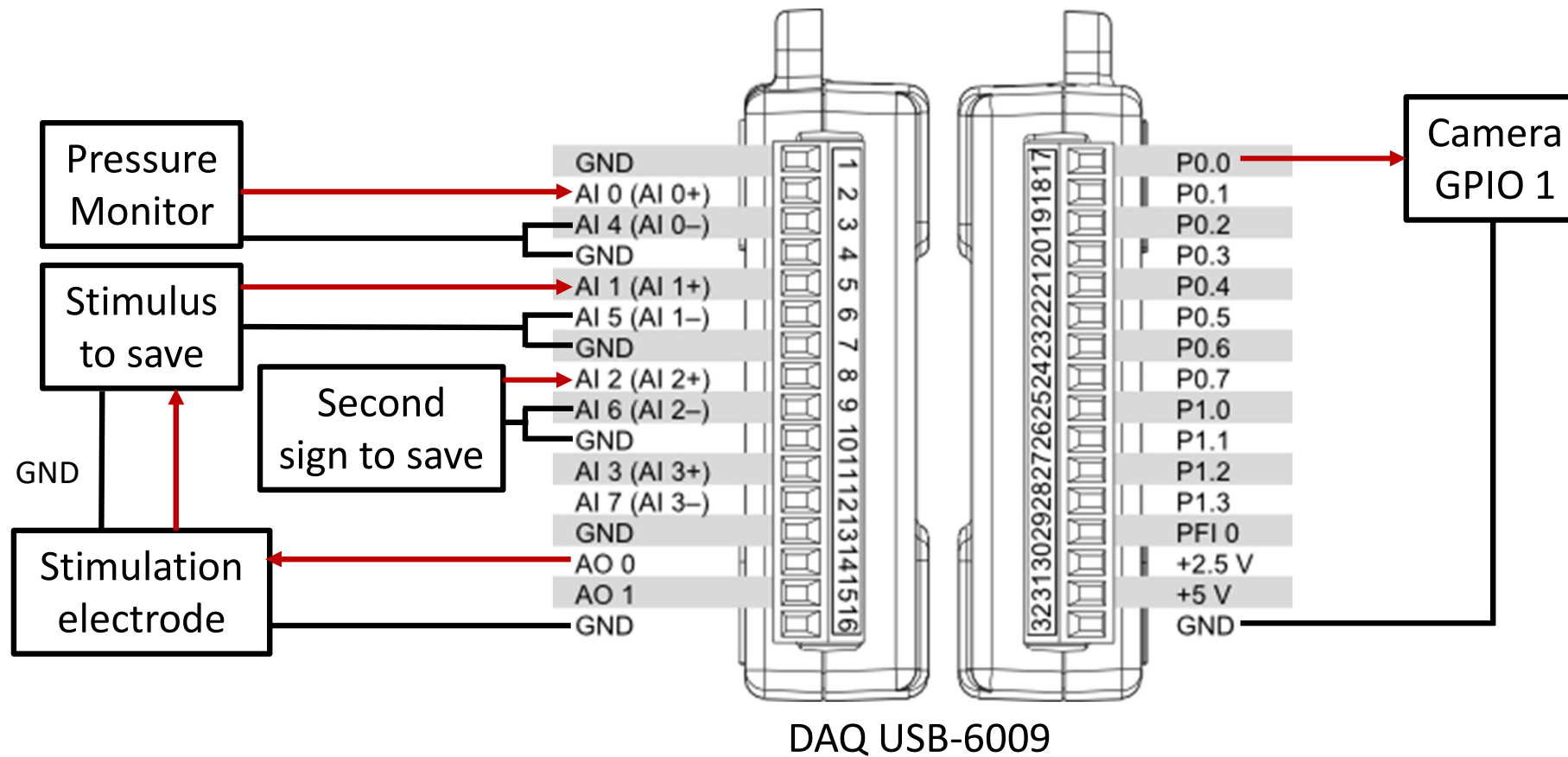
Second sign

Stimulation signal

Note: the second signal is also saved in the same format

Signal values

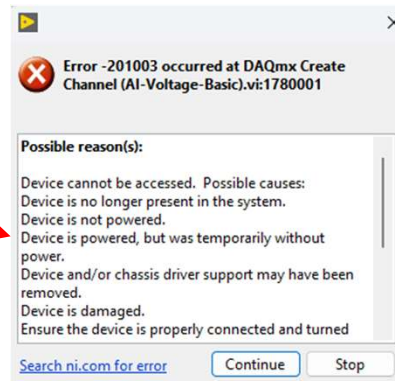
Connecting the Acquisition Card



Troubleshooting

Software error resulting from data acquisition card I/O configuration

When this problem occurs, the following window appears.



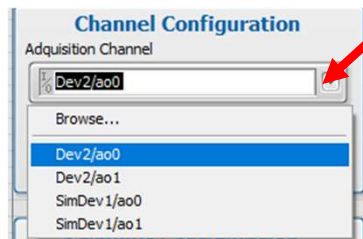
Solution 1: Ensure that the acquisition card is connected and detected by your operating system.

If your card is detected, the window shown below will appear when you connect it..

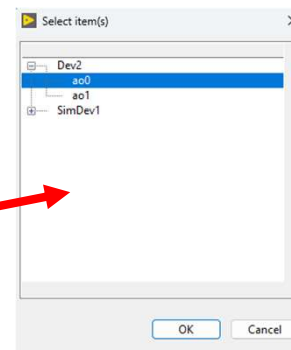


Solution 2: If the problem persists, make sure to configure the I/O according to the port assigned to your card, which could be Dev1, Dev2, etc.

2.1. Go to the Front Panel, to the channel configuration section, and click here.

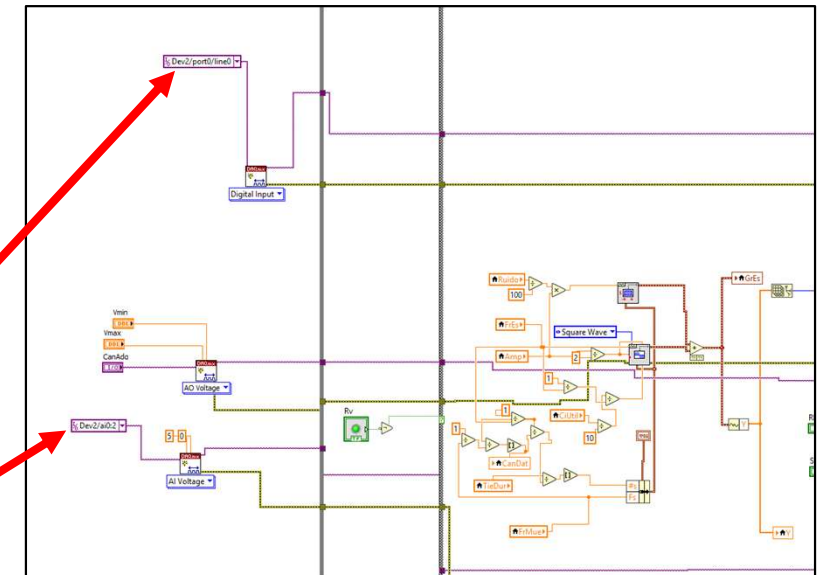


2.2. Then select the "Browse" option, and the following window will appear.



2.3. Select the I/O corresponding to your data acquisition card and click OK.

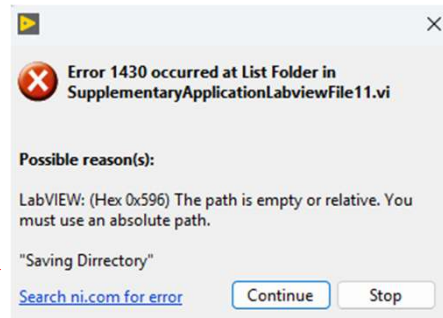
2.4. Go to the Block Diagram and perform the same step for these two variables



Troubleshooting

Problems with saving signals (Stimulus and second signal)

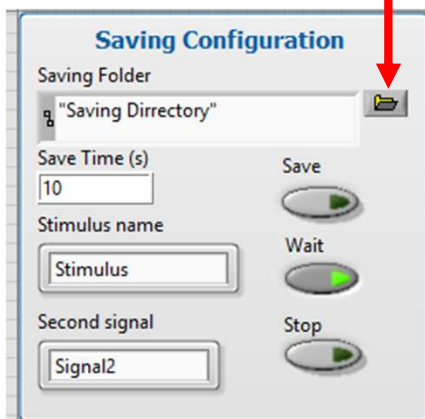
When this problem occurs, the following window appears.



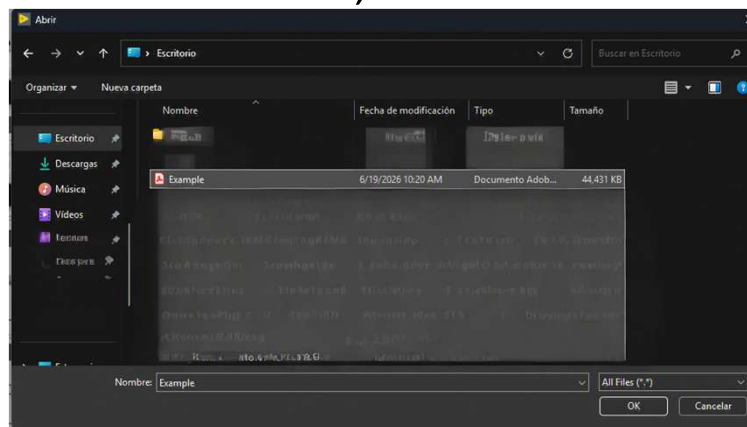
This problem occurs when the save location does not exist.

Note: Files are automatically saved using the entered name followed by the stimulation frequency and amplitude; if saving more than one video at the same frequency, it is recommended to modify the name to avoid overwriting.

1.1. Go to the Saving Configuration section and click here.



1.2. A window will open for you to select the path; go to that location, select a file, and click OK.



1.3. Once the path is set in the Saving Folder, delete the filename, leaving only the folder path (for example, "\\Example.pdf" would be removed).

