

STARTLE PRO SOFTWARE

SOF-826 / SOF-827

USER'S MANUAL

DOC-009

Rev. 4.0

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notes

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CHAPTER 1 | INTRODUCTION

The instructions in this manual will provide information on how to run experiments using either the **SOF-826 Pre-Pulse Inhibition Startle Pro Software** or the **SOF-827 Fear Potentiated Startle Pro Software**. These software programs function in a similar way, such that they can both be discussed concurrently.

The **SOF-826 Pre-Pulse Inhibition Startle Pro Software** requires only that the user enter a unique file name for data storage, any test comments that need to be saved with the session data, and an animal number or identifier for each test chamber. Following an acclimation period of one minute, a total of 55 trials are run. The first 40 trials consist of 24 PPI trials that are randomly dispersed among 16 Noise Burst Only trials. The 24 pre-pulse trials consist of eight 20 KHz at 70 dB trials, eight 12 KHz at 70 dB trials, and eight 4 KHz at 70 dB trials. The Noise Burst Only trials are at an intensity level of 100dB. The remaining 15 trials consist of five trials each of Noise Burst randomly sorted at an intensity level of 70, 80, or 90 dB. Each trial is separated by a variable ITI with a range of three to eight seconds. The data consist of a text file with maximum peak-to-peak values for each trial that can be easily imported into a spreadsheet for further analysis.

The **SOF-827 Fear Potentiated Startle Pro Software** provides extremely high throughput and a single file with information on all animals per run. The only input required by the user is a unique file name for data storage, any test comments that need to be saved with the session data, and an animal number or identifier for each test chamber. Both a training series and test series are provided. Maximum peak-to-peak values for both series are saved to a text file that can be easily imported into a spreadsheet for further analysis.

Please ensure your equipment is setup and calibrated correctly using the manual for Startle Reflex, SOF-825, Chapters 2 and 4 respectively.

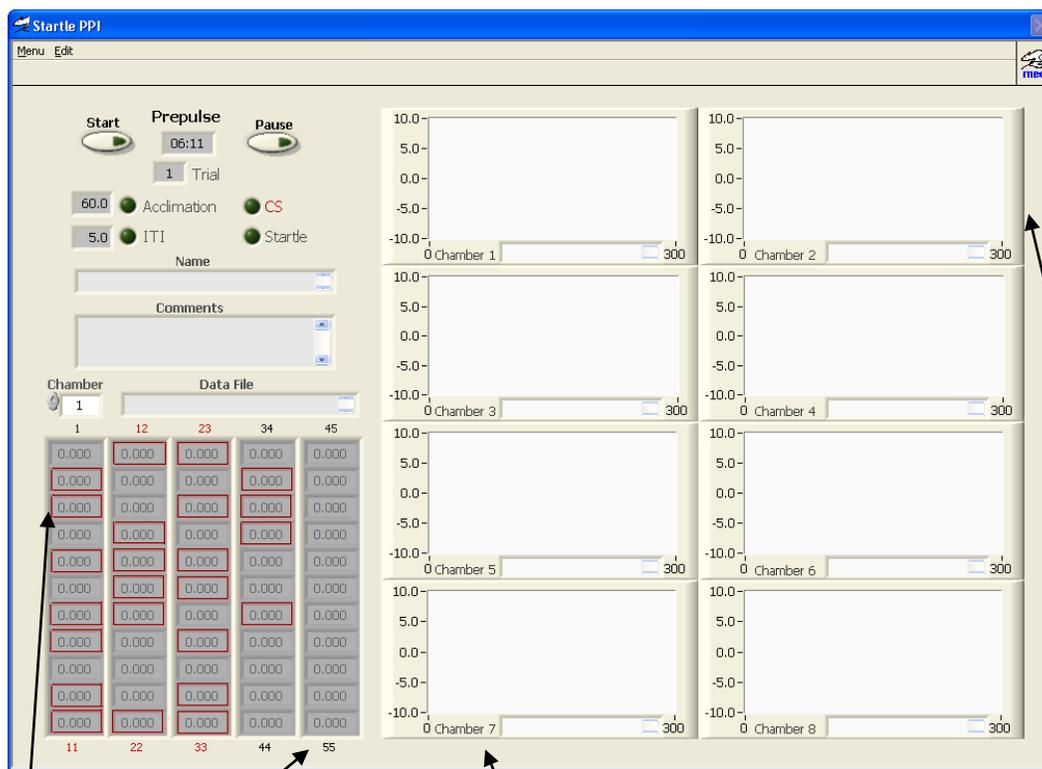
CHAPTER 2 | RUNNING AN EXPERIMENT

Running an experiment requires very similar steps for both the Fear Potentiated Startle (FPS) and Pre-Pulse Inhibition (PPI) protocols, so in the following examples only Pre-Pulse Inhibition will be covered.

Open the Startle PPI program, the screen shown in Figure 2-1 will appear.

Note: When the Startle FPS program is opened, a different screen will appear asking the user if training or testing should be run. After selecting the desired option, a screen similar to the one in Figure 2-1 will appear. Everything else will be nearly identical.

Figure 2-1 – Prepulse Startle Screen



Live Trial View – Each chart here is the real-time view of each chamber’s current voltage value, as measured by the load cell. Measured from -10V to 10V

Trial Summary View – Each entry here represents a trial. Prepulse trials are shown in red. The metric denotes the maximum peak to peak voltage value of the listed trial. This shows Trials 1 through 55.

Acclimation – The period, in seconds, during which the program will be running but no stimuli are presented. This takes place before the trials. The status light turns green when active.

CS – Conditioned Stimulus. The Stimulus before the Startle Stimulus, known as the prepulse stimulus. The status light turns green when active.

ITI – Inter-Trial Interval. The time, in seconds from the end of the previous trial to the beginning of the next trial.

Startle – Startle Stimulus. The period, during which the loud noise burst is presented. The status light turns green when active.

Start – Brings up a file save screen. See figure 2-2. Enter a file name in the **File Name** field for the group that is about to be run. This filename will assist the user with easily identifying which group of animals will be run.

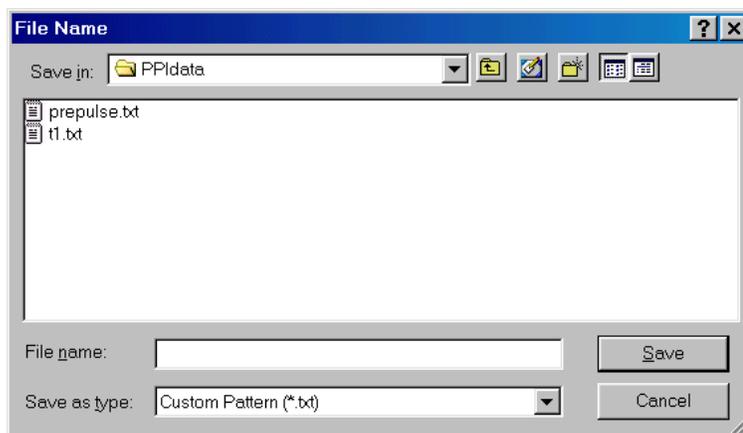
Comments – Any further information that is considered useful in identifying the group or experiment should be entered in this section.

Data File – Designates the default directory where the data will be saved in a text file under the name given in the **File Name** window. If the data should be saved to a different directory, the new location and name can be selected when the dialog window shown in Figure 2-2 appears. The default directory is automatically created during the software installation.

Chamber – Enter an identifier for each animal in the group in the corresponding field. The number of Chamber windows will vary depending on the number of chambers connected in the system. If there are four startle chambers connected, then only Chamber windows 2-4 will be used, although data will still be collected from 5-8 (these will be deleted later in the data extraction). This can also vary if there are different numbers of animals in different groups, or all of the available chambers are not being used.

Select **Start** to begin the experiment. The screen shown in Figure 2-2 will appear.

Figure 2-2 – File Name Window



The File Name screen, shown in Figure 2-2, prompts the user to confirm that the file name and directory have been entered accurately. If the file name and directory are correct, make sure the animals have been placed in the holding tubes and the doors are closed, then select **Save**. The program will begin running after selecting save.

An alternative to designating the file name and directory on the Prepulse Startle screen (Figure 2-1) is to make designations in the File Name window (Figure 2-2). In this dialog box, the user may select a directory and designate a file name without having done so on the initial screen.

After the program has been run, nothing further needs to be done because the data is automatically saved to the text file.

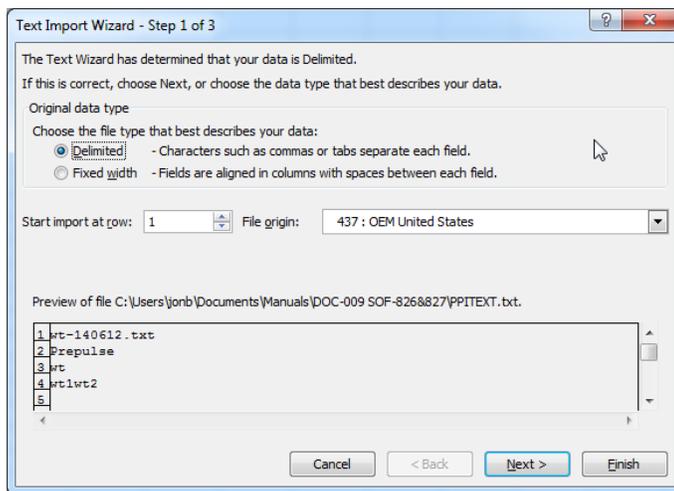
If another group is going to be run, change the information in the **Chamber** fields so that the new group of animals is appropriately identified. Everything else will be the same as for the first group, except for the name of the file.

CHAPTER 3 | EXPORTING DATA

Because the data has been saved as a text file and in a specific format, exporting data to a spreadsheet program is simple with the Startle Pro Software. In this example, Microsoft Excel™ is used to illustrate the process of exporting data.

Open Microsoft Excel™ and select **File | Open**, and then find the directory where the text file was saved. In the **Files of type** pulldown menu, select **Text files (*.prn; *.txt; *.csv)**, which will cause all of the files with a .txt extension to be displayed. Select the data file for the first group and select **Open**. This will open the **Text Import Wizard**, shown in Figure 3-1.

Figure 3-1 – Text Import Wizard Step 1



Because the data has been saved in a specific format, simply select **Finish**, and the data will automatically be imported into Excel, and will appear as shown in Figure 3-2.

Figure 3-2 – Data Exported to Excel

The screenshot shows an Excel spreadsheet with the following data:

Chamber Number:											
Trial Num	Startle	Stimulus	dB	1	2	3	4	5	6	7	8
1	01:00.0	NB	100	2.212	19.614	6.875	2.715	1.279	0.684	0.449	0.508
2	01:05.3	70.12	100	11.284	5.122	2.046	0.85	0.547	0.483	0.396	0.332
3	01:12.6	70.04	100	9.214	4.927	2.09	1.162	0.83	0.659	0.532	0.449
4	01:16.9	NB	100	2.061	19.995	18.345	14.487	12.158	11.108	10.586	10.034
5	01:21.2	70.2	100	5.112	5.952	2.075	0.84	0.415	0.283	0.205	0.171
6	01:29.5	NB	100	14.883	8.779	3.232	1.577	0.923	0.669	0.527	0.43
7	01:32.8	70.04	100	1.846	7.954	3.003	1.426	0.757	0.522	0.396	0.322
8	01:37.1	70.2	100	7.251	2.061	1.157	0.859	0.62	0.464	0.366	0.308
9	01:43.4	NB	100	11.802	13.716	5.269	2.09	1.138	0.723	0.498	0.337
10	01:46.7	70.12	100	1.729	10.591	3.887	1.641	0.737	0.43	0.312	0.273
11	01:55.0	70.2	100	1.66	3.408	1.299	0.718	0.454	0.317	0.312	0.269
12	02:03.3	70.12	100	14.243	4.102	1.909	1.299	0.908	0.698	0.62	0.552
13	02:07.6	NB	100	16.914	1.792	0.845	0.469	0.293	0.215	0.171	0.137
14	02:13.9	NB	100	19.995	3.799	7.065	7.373	7.3	7.69	7.549	7.256
15	02:22.2	70.04	100	6.812	6.045	2.158	0.879	0.41	0.283	0.225	0.264
16	02:29.5	70.12	100	11.152	8.989	3.35	1.47	0.664	0.376	0.259	0.171
17	02:34.8	70.2	100	2.524	19.78	7.725	3.169	1.68	1.089	0.796	0.625
18	02:43.1	70.04	100	6.245	6.958	2.852	1.372	0.747	0.527	0.439	0.361
19	02:50.4	NB	100	18.066	14.619	5.703	2.388	1.064	0.684	0.508	0.361
20	02:55.7	NB	100	14.014	19.995	16.27	9.082	6.67	5.42	4.917	4.502
21	03:02.0	NB	100	13.481	15.195	5.093	2.002	1.055	0.674	0.488	0.352
22	03:07.3	70.2	100	4.106	15.918	5.986	2.559	1.274	0.874	0.654	0.493
23	03:15.6	70.04	100	3.247	2.744	1.021	0.483	0.303	0.22	0.166	0.142
24	03:19.9	NB	100	7.305	14.814	6.079	2.656	1.445	0.962	0.688	0.493
25	03:26.2	70.12	100	2.412	4.551	1.611	0.708	0.405	0.260	0.19	0.151

Cell A1 contains the file name.

Row 4, Columns E-L contain the designations given to the animals. In the example shown in Figure 3-2 only two animals were run, so the data in columns G-L did not represent data from animals and consequently the contents were deleted.

Column A contains the Trial Numbers.

Column B contains the times at which the trials were started, relative to beginning of experiment.

Column C indicates which trials were noise burst alone (NB) and which were preceded by a pre-pulse. If a pre-pulse preceded the trial, the frequency in kHz and dB level of the pre-pulse is indicated in column C. The format that this data is displayed in is “dB.frequency”. For example, the Trial 2 cell in Figure 3-2 contains the value 70.12, which means a 70dB, 12kHz pre-pulse was presented and the Trial 3 cell contains 70.04, which means a 70dB, 4kHz pre-pulse was presented.

Column D contains the dB level of the startle-eliciting noise burst (100dB).

If more than one group was run, repeat the steps above to open the data for the next group in a new worksheet. This data can be copied and pasted into the worksheet with the first group’s data. After all the data is in one worksheet, the data can be summarized using whichever method the user finds desirable.

APPENDIX A | CONTACT INFORMATION

Please contact Med Associates, Inc. for information regarding any of our products.

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