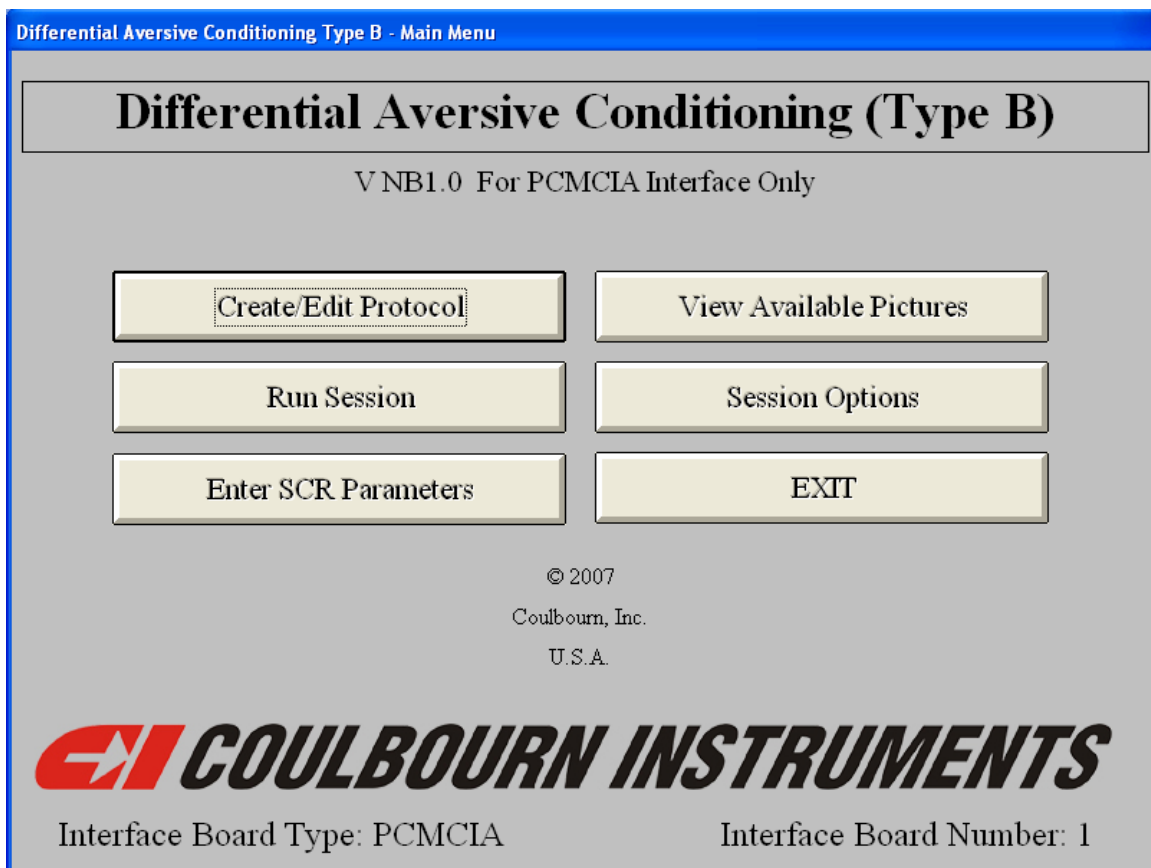


# DIFFERENTIAL AVERSIVE CONDITIONING (TYPE B)

V NB1.0  
FOR PCMCIA INTERFACE



## USERS' GUIDE

# **DIFFERENTIAL AVERSIVE CONDITIONING**

**(P/N HMS-400)**

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## **Installing the PCI-3 Interface Card (Desktop Computer)**

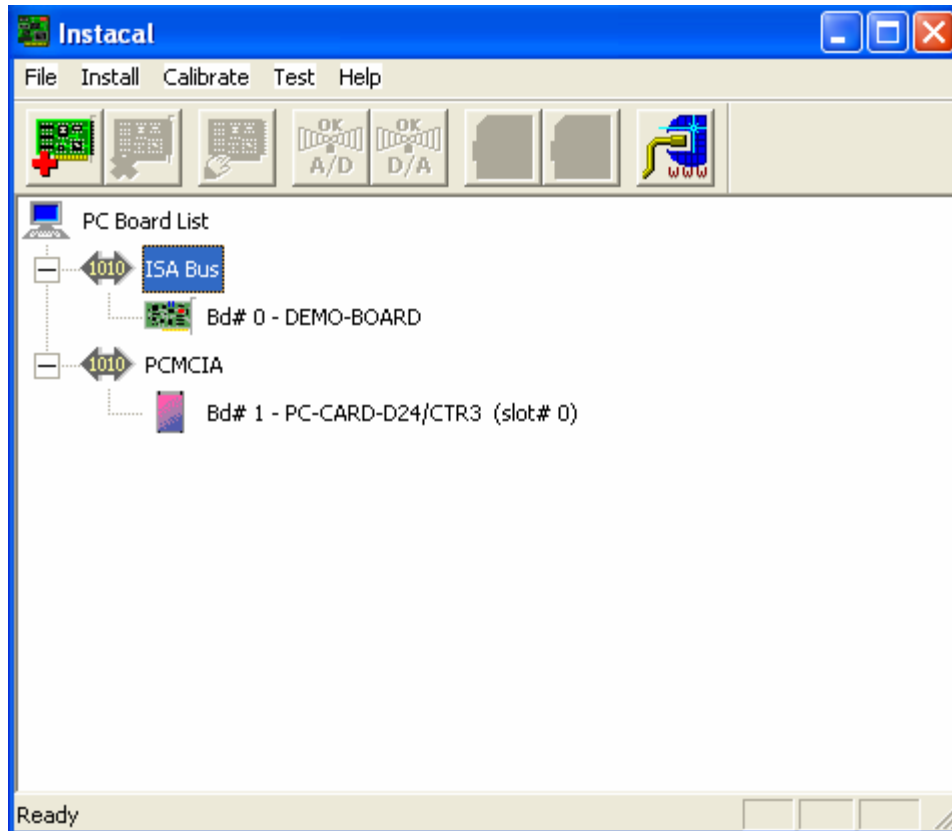
Run the software from the PCI-3 Interface Driver CD version 5.24 (Instacal). The software should auto run when the CD is installed in the CD drive. If the software does not start to run, select , Start > Run, then browse to the CD drive, select the file "setup.exe" and then click on the OK button.

Once Instacal is installed, shut down the computer and reboot. Then shut down the computer and install the PCI-3 card (PCI-INT32) in the computer. Reboot the computer and the Windows Hardware Installation Wizard should automatically start. If the Hardware Wizard does not begin, go to Control Panel and select Add Hardware. Follow the steps through the Hardware Wizard. Once the Hardware Wizard is complete run Instacal one time (Start > All Programs > Measurement Computing > Instacal). A window should appear indicating that the PCI card has been successfully installed. Click the OK button and then exit Instacal.

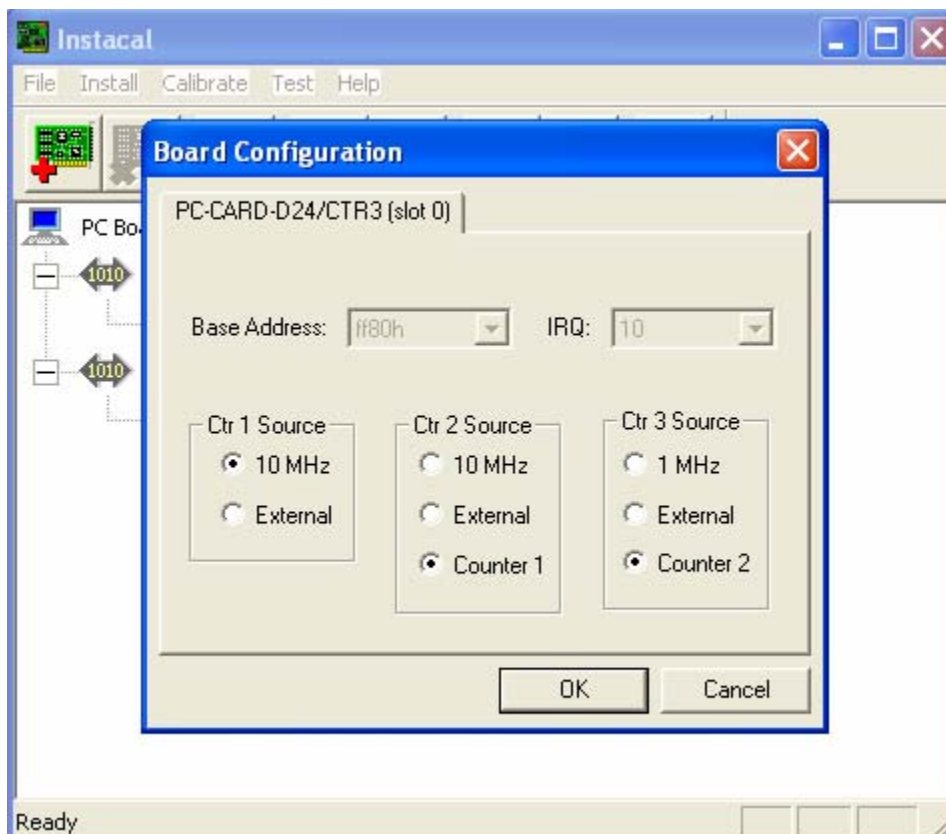
## **Installing the PCMCIA Interface (Laptop Computer)**

Run the software supplied with the Measurement Computing PCMCIA card before inserting the card into the computer's slot. When the card is inserted, the system should recognize it and load the required drivers automatically.

It will be necessary to run Instacal (this program will be added to the system when the Measurement Computing software is run) to correctly configure the interface card. The figure below illustrates the screen displayed by Instacal if the card installation was successful.



Right-click on the name of the card, and select Configure from the pull-down menu. The following screen will then be shown.



Select 10 MHz as the source for Ctr 1, then select Counter 2 as the Ctr 3 source (in the rightmost frame), and then Counter 1 as the Ctr 2 source in the center frame. Click on OK and exit from Instacal. This completes the installation and configuration of the interface card.

## Connecting the Computer to the V19-16 LabLinc Port

Several components will be needed to complete this connection. The PCMCIA kit contains all these parts. The power supply is used to provide 5 VDC to the H91-20 PCMCIA adapter. The ribbon cable connects the H91-20 to the interface card. Note that there is a white dot on one side of the molded plastic connector which is inserted into the interface card. The connector must be inserted so that the dot corresponds to the dot on the interface card itself. Finally, use the cable with 25-pin D-sub connectors at each end to connect the H91-10 to the V19-16 LabLinc Port. (See the Appendix for connecting external devices to the V19-16.)

## Loading the Application Software

Place the distribution CD in the drive and run the SETUP program. Accept all default settings during installation. The application will be installed in a subfolder of the Program Files folder named *davcondbnb*.

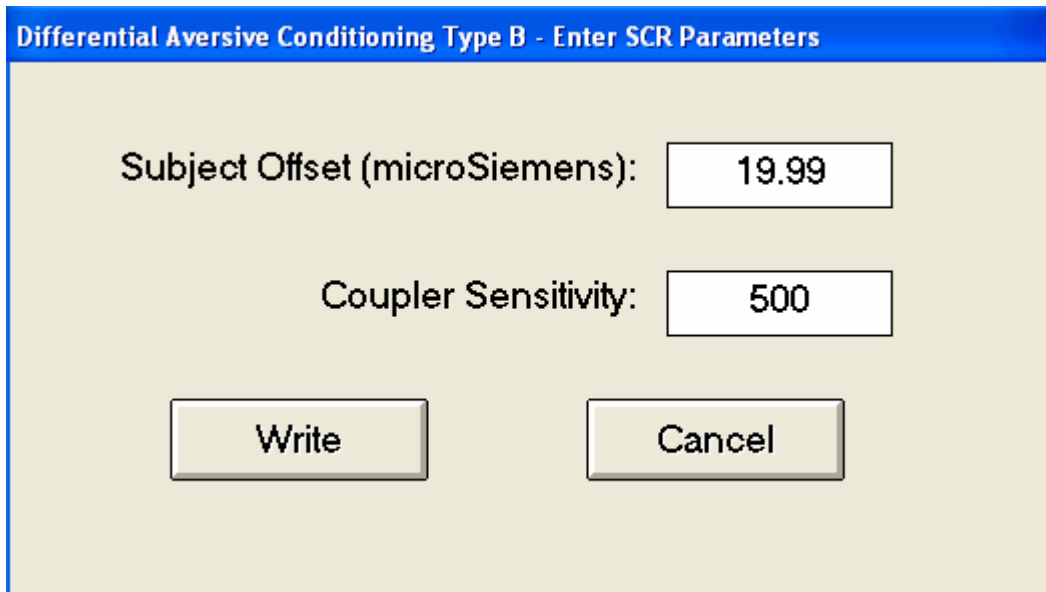
Note that the images to be presented must be written to a subfolder of the *davcondbnb* folder and this folder must be named *images*. The images must be saved as bitmap (bmp) files.

## Running the Software

Start the program by clicking on *davcondbnb.exe* in the application folder. The screen shown on the opening page of this document is displayed when program execution begins.

To view the stored images, click on the *View Available Pictures* control. The program will display the first file in the *images* subfolder and will provide *NEXT* and *DONE* controls. Use these to scroll through the images and to return to the main menu.

The settings of the skin conductance coupler are provided to the program by selecting the *Enter SCR Parameters* control. The following screen will be shown.



Differential Aversive Conditioning Type B - Enter SCR Parameters

Subject Offset (microSiemens):

Coupler Sensitivity:

Enter the appropriate values for subject offset and sensitivity, then click on the *Write* control to save the settings to a file in the application folder (this file will be named *davcondnbscr.txt*).

Select the *Create/Edit Protocol* control to begin the process of saving an experiment protocol. The program will show this screen.

Differential Aversive Conditioning Type B - Create/Edit Protocol

<< Clear

T Num	T Ty	ITI (sec)	S1 Image	S1 Dur (msec)	ISI (msec)	S2 Image	S2 Dur (msec)	UCS (Y/N)
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

Save As

Open

Clear

Done

IMAGES FOUND

test1.bmp  
test2.bmp  
test3.bmp  
test4.bmp  
test5.bmp  
test6.bmp

Entries will be made in the row of text boxes at the top of the screen. The trial type is entered in the leftmost text box. This entry is used only as an identifier to simplify data analysis and can be any integer in the range 1 through 999999. The next text box is used to enter the intertrial interval (in seconds). Note that for the first trial, the specified interval will precede stimulus presentations. The next entry is the image to be presented as the first stimulus. The screen shows the list of available images in the list box entitled *IMAGES FOUND*. Click on the name of the file to be used as S1, then click on the S1 text box; the program will place the name of the file into the S1 box. Entries continue for the S1 duration (in milliseconds) the interstimulus interval (in milliseconds), the name of the file to be used as S2, the duration of S2 (in milliseconds), and whether or not the trial terminates with the presentation of the unconditional stimulus (UCS). In the rightmost text box, enter Y or N.

When all entries are complete, click on a row of the grid to copy the information into that row. The screen below shows the grid after two trials have been entered.

**Differential Aversive Conditioning Type B - Create/Edit Protocol**

2	25	test1.bmp	3000	0	test5.bmp	8000	Y	<< Clear
T Num	T Ty	ITI (sec)	S1 Image	S1 Dur (msec)	ISI (msec)	S2 Image	S2 Dur (msec)	UCS (Y/N)
1	1	25	test1.bmp	3000	0	test4.bmp	8000	N
2	2	25	test1.bmp	3000	0	test5.bmp	8000	Y
3								
4								
5								
6								
7								
8								
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24								
25								
26								
27								
28								
29								
30								

Save As

Open

Clear

Done

IMAGES FOUND

- test1.bmp
- test2.bmp
- test3.bmp
- test4.bmp
- test5.bmp
- test6.bmp

Use the *Save As* control to write the trial information to a file in the application folder. These files will have *.prt* extensions.

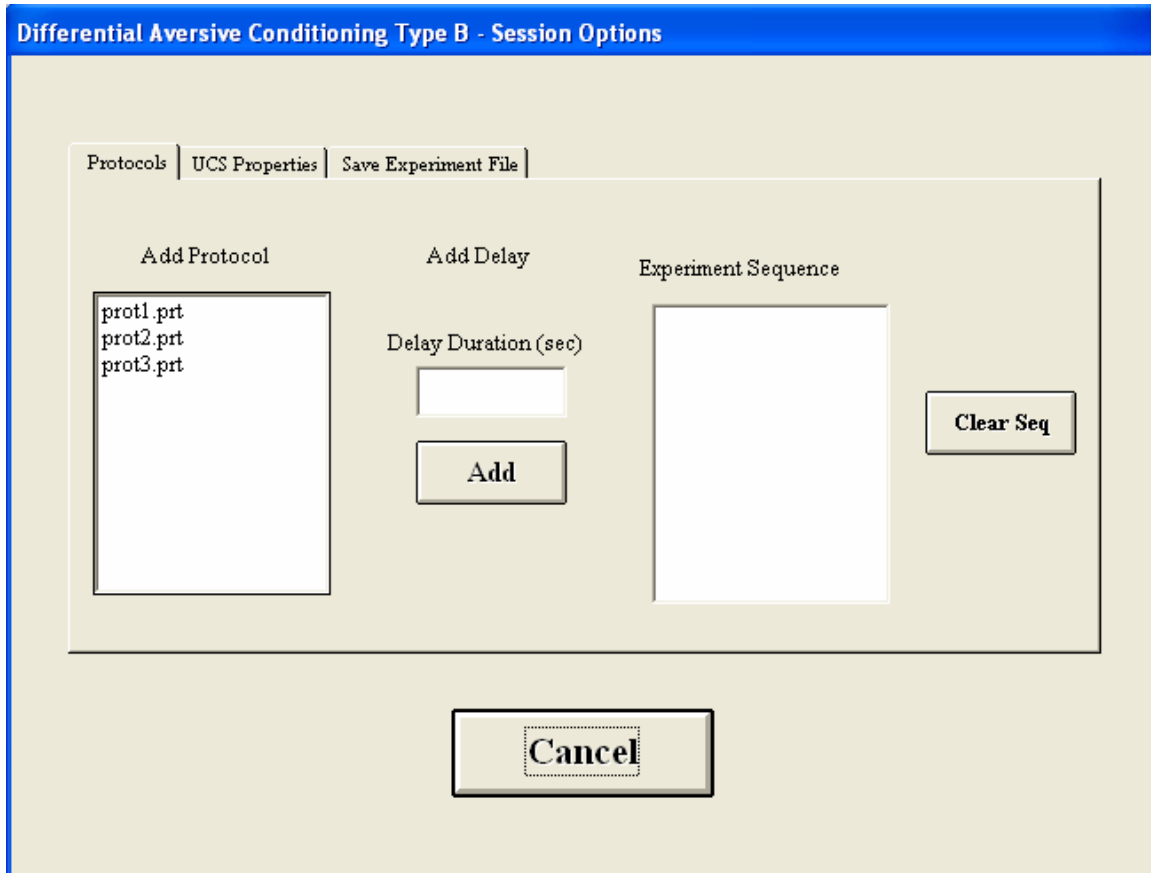
Use the *Open* control to edit a *.prt* file which already exists in the application folder. After any required changes have been made, the file may be saved with its original name, or the edited version may be given a new name,

The *Clear* control clears all entries in the data entry text boxes.



Use the *Done* control to return to the main menu.

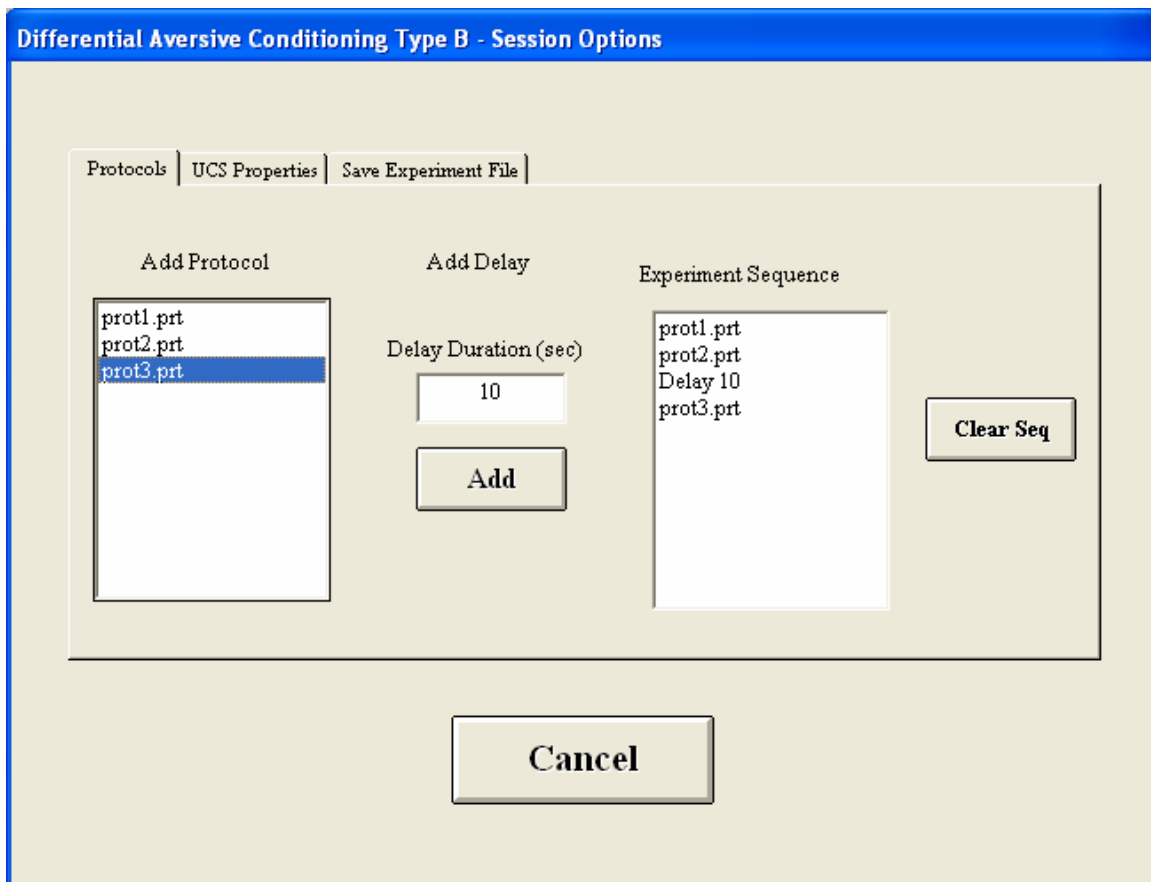
The *Session Options* control is used to specify the course of an experimental session. The program will display this screen when this control is selected.



The *Protocols* tab is selected, and the list of available protocols is shown in the *Add Protocol* list box. Click on the name of the first protocol to be used and the program will add the name of the protocol to the *Experimental Sequence* list box. Continue to add protocols until the list is complete.

If a pause is to be inserted between protocols, enter the value of the pause in the *Delay Duration* text box, and then click on the *Add* control. The delay will be added to the *Experimental Sequence* list box.

The screen below shows session specifications with a 10-second delay between the presentations of protocols *prot2* and *prot3*.



The *Clear Seq* control is used to clear all entries in the *Experimental Sequence* list box.

Select the *UCS Properties* tab to display the following screen.

Differential Aversive Conditioning Type B - Session Options

Protocols | UCS Properties | Save Experiment File |

UCS onset delay from S2 offset (in msec; use negative values for overlap)

0

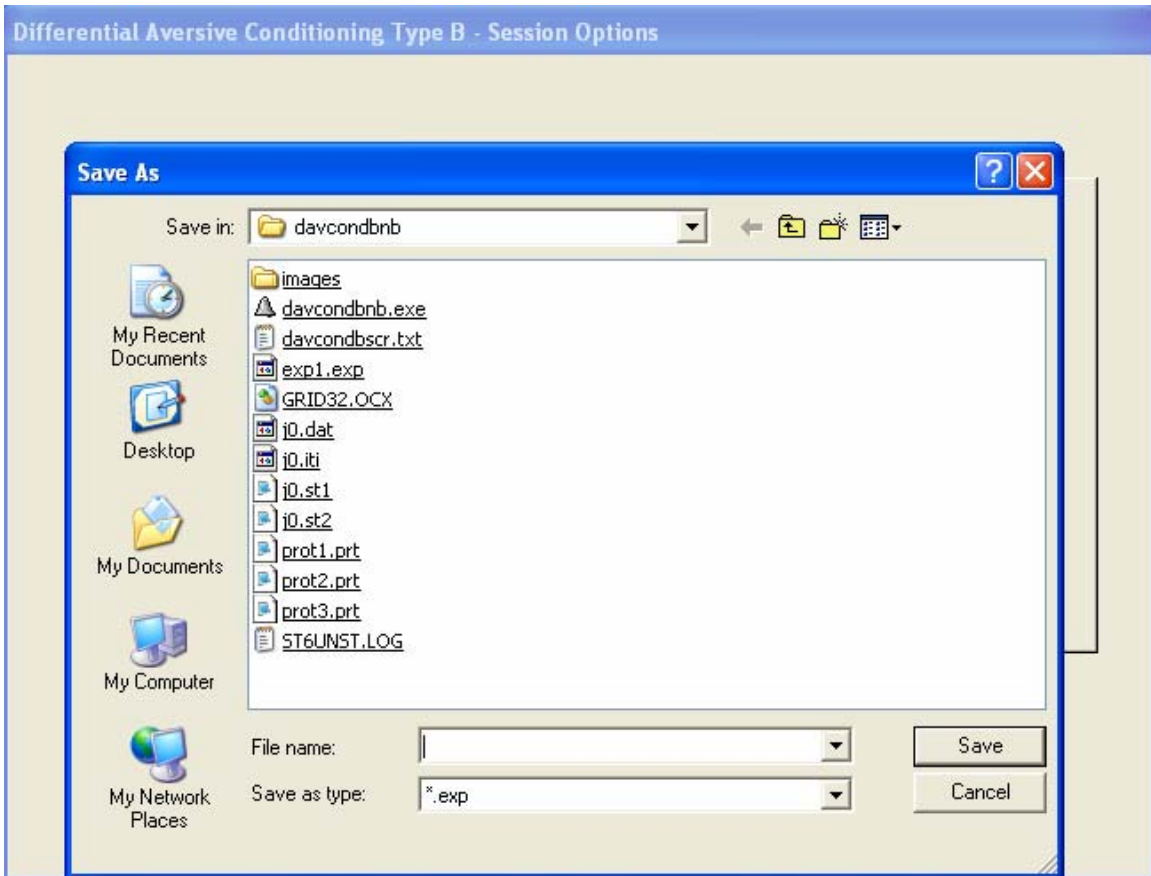
UCS duration (msec)

500

Cancel

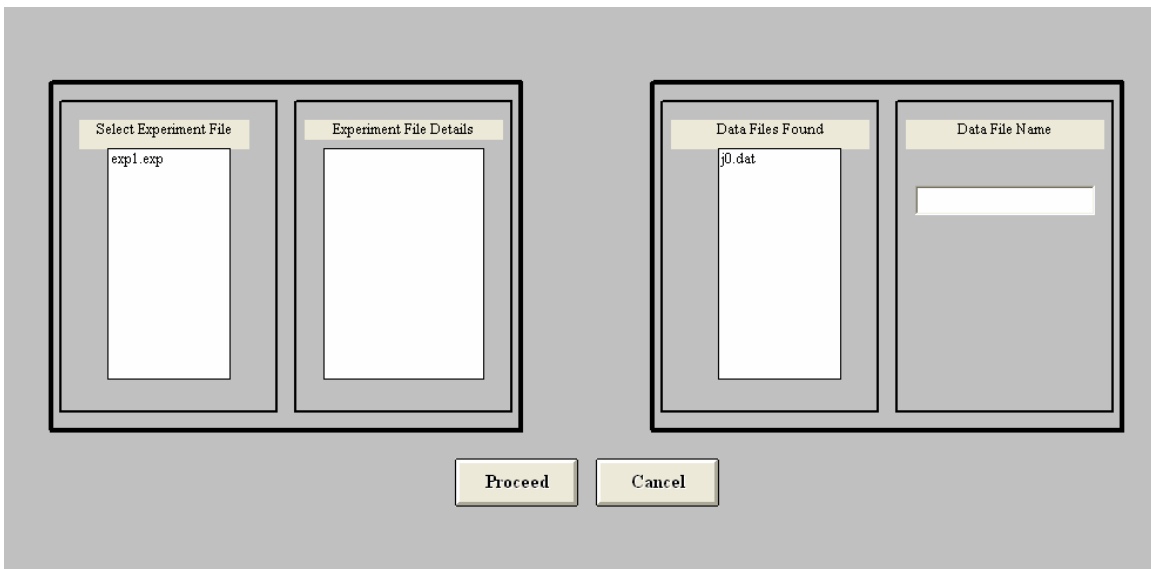
If there is to be a delay in UCS presentation after the offset of S2, enter the duration of the delay (in milliseconds) in the upper text box. Enter a negative value if S2 and the UCS are to overlap. The value entered will specify the duration of the overlap period. UCS duration (in milliseconds) is specified by the entry in the lower text box.

Select the *Save Experiment File* tab to show the next screen. First make certain that the application folder (*davcondbnb*) is shown as the *Save in:* destination. Enter the name to be used in the *File Name:* text box, and click on *Save*. Experiment files will be written to the application folder with *.exp* extensions.

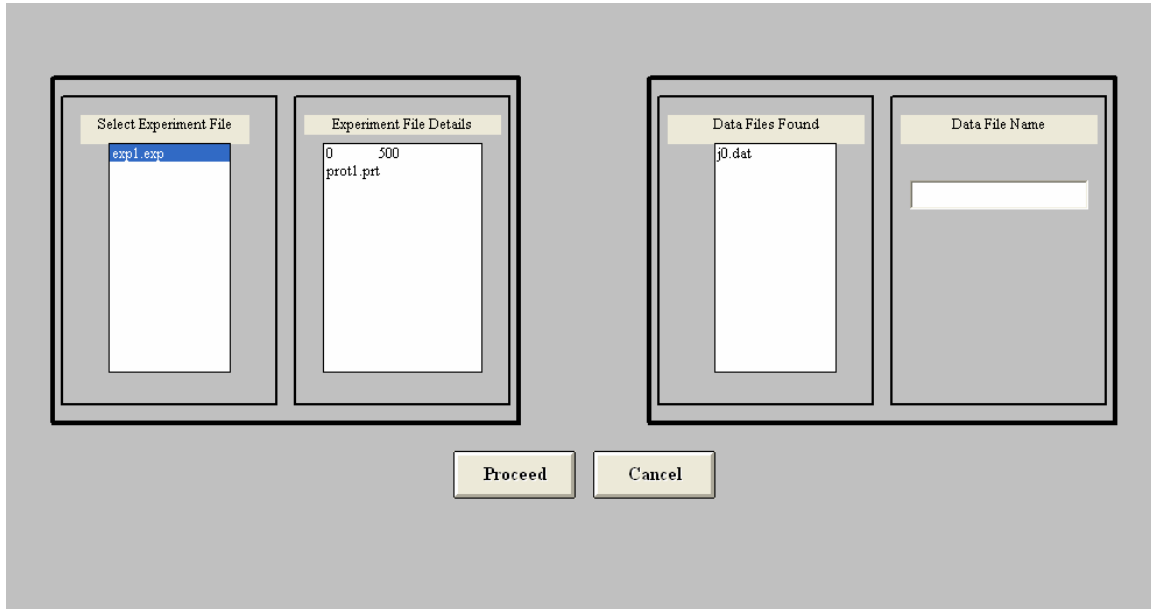


After the experiment file is written, the *UCS Properties* screen will be displayed. Use the *Cancel* control on this screen to return to the main menu.

Select the *Run Session* control to begin the process of running an experimental session. The program will show the following screen.



Click on the name of the experiment file to be used, and the program will show the contents of the experiment file in the *Experiment File Details* box as in the screen below.



The 0 and 500 are the values of the UCS delay and UCS duration respectively.

The names of data files already in the application folder are shown in the *Data Files Found* list box. (Note that although several data files are written during a session, only the *.dat* file name is displayed at this time. Since the root names of all data file for a given session are the same, this single display suffices to show the file names already in use.) Enter the root portion of the names to be used for the new data files, and click on *Proceed* to begin the session.

During ITIs, the display will show the time remaining in the ITI. When the ITI times out, the subject monitor will be enabled, and S1 will be shown for its scheduled duration. Then S2 will be shown (with any scheduled ISI inserted between the stimuli) and, if scheduled, the trial will end with UCS presentation. The subject monitor is disabled at the end of S2 presentation. The next ITI begins at the offset if S2.

## Data File Structure

Four data files are written for each session. Following is a description of the contents of each of these files.

Skin conductance data are collected at 200-millisecond intervals (5 Hz) throughout the course of the session and are written to the data files in micro-Siemens (i.e., acquired voltages are converted by adjusting for the subject offset and sensitivity settings of the coupler). Unscored data are segregated into three files. The data collected during ITIs are written to files with *.iti* extensions. These data are further separated into those collected during the first 5 seconds of the ITI (i.e., the first 25 samples) and those collected during the remainder of the ITI. In the *.iti* file, each sample is identified by trial number (1 through *n*) and the partition of the ITI, 1 or 2, with 1 corresponding to the first 5 seconds' data.

The unscored data collected during S1 and S2 are written to files with *.st1* and *.st2* extensions. Each sample is preceded by a trial number.

Scored data are written to files with *.dat* extensions. A record containing seven data elements is written after each trial. The data elements are: the trial number, the SCR level during the first 5 seconds of the ITI, the SCR level during the remainder of the ITI, the SCR response during S1 (defined as the difference between the peak SCR observed during S1 and the SCR level observed in latter part of the preceding ITI), the latency to the S1 peak, the SCR response during S2 (defined as above but using the peak SCR observed during S2), and the latency to the S2 peak.

## **Appendix 1 (Hardware Connections)**

Skin conductance data are acquired by connecting the coupler output to Analog Input 2 of the V19-16.

The two external devices which must be connected to the V19-16 are the video splitter and the finger shocker. In typical installations, these are controlled by relays which are themselves controlled by output bits of the V19-16.

The video splitter is controlled by Output Bit 8 and the finger shocker by Output Bit 7.