

Experiment HP-6: Cynicism/Hostility and the “Hot Reactor”

Equipment Required

PC or Mac Computer

IWX/214, USB cable, IWX/214 power supply

PT-104 Pulse plethysmograph

BP-600 Non-invasive blood pressure transducer

Start the Software

1. Click on LabScribe
2. Click Settings → Human Psychophysiology → HotReactor
3. Once the settings file has been loaded, click the **Experiment** button on the toolbar to open any of the following documents:
 - Appendix
 - Background
 - Labs
 - Setup (opens automatically)

Blood Pressure and Pulse Transducers Setup

1. Locate the BP-600 non-invasive blood pressure (NIBP) transducer ([Figure HP-6-S1](#)), and PT-104 pulse plethysmograph ([Figure HP-6-S2](#)), in the iWorx kit.
2. Plug the DIN8 connector of the PT-104 into the Channel 3 input of the IWX/214 ([Figure HP-6-S3](#)).
3. Plug the DIN8 connector of the BP-600 into the female end of the DIN-DIN extension cable. Plug the male end of the DIN-DIN extension cable into the Channel 4 input of the IWX/214.



Figure HP-6-S1: The BP-600 non-invasive blood pressure transducer.

Calibration of the Non-Invasive BP Transducer

Procedure

1. Put the cuff of the BP-600 on the upper arm of the subject. Align the arrow on the cuff over the subject's brachial artery. Have the subject rest in the supine position while the blood pressure sensor is calibrated.
2. Click on the Record button, located on the upper right side of the LabScribe Main window ([Figure HP-6-S4](#)). The signal should begin scrolling across the screen.



Figure HP-6-S2: The PT-104 pulse plethysmograph.



Figure HP-6-S3: The PT-104 pulse transducer and the BP-600 non-invasive blood pressure transducer connected to an IWX/214.

3. Click on the AutoScale button at the upper margin of the Pulse and Blood Pressure channels. Your recording should look like [Figure HP-6-S4](#).

- If the signal on the Pulse channel is upside down when compared to, click the downward arrow to the left of the Channel Title and select the Invert. The trace should now look similar to the figure.
 - If the pulse signal is small or noisy, adjust the tension on the strap holding the pulse plethysmograph to the finger.
4. Type Calibration @ 70 mmHg in the Mark box to the right of the Mark button. Inflate the pressure in the cuff to 70 mmHg as read on the aneuroid gauge of the cuff.
 5. While recording, press the Enter key on the keyboard to mark the pressure in the cuff on the data. Record the output of the BP-600 at 70 mmHg pressure for ten to fifteen seconds before increasing the pressure in the cuff. While recording at a pressure of 70mmHg, type Calibration @ 140 mmHg in the Mark box.
 6. As the recording continues, increase the pressure in the cuff to 140 mmHg and press the Enter key on the keyboard. Hold the pressure in the cuff at this level for ten to fifteen seconds.
 7. As the recording continues, increase the pressure in the cuff to 140 mmHg and press the Enter key on the keyboard. Hold the pressure in the cuff at this level for ten to fifteen seconds. Then, click the Stop button to halt the recording.

After the last measurement, release all the pressure from the blood pressure cuff. The subject should continue to relax in the supine position as he or she flexes and extends the fingers on the cuffed arm to return of blood to the arm. You can remove the BP-600 cuff from the subject until Exercise 1.

8. Select Save As in the File menu, type a name for the file. Click on the Save button to save the data file.

Units Conversion

1. Scroll to the beginning of the calibration data for the BP-600 non-invasive blood pressure transducer.
2. Use the Display Time icons to adjust the Display Time of the Main window to show the data collected at 70 and 140 mmHg on the Main window at the same time ([Figure HP-6-S4](#)). The required data can also be selected by:
 - Placing the cursors on either side of data required;
 - Clicking the Zoom between Cursors button on the LabScribe toolbar to expand the segment with the four selected pulse cycles to the width of the Main window.
3. Click the 2-Cursor icon ([Figure HP-6-S5](#)) so that two cursors appear on the Main window. Place one cursor on the flat section of data collected when the pressure in the cuff was 70 mmHg and the second cursor on the flat section of data collected when the pressure was 140 mmHg.

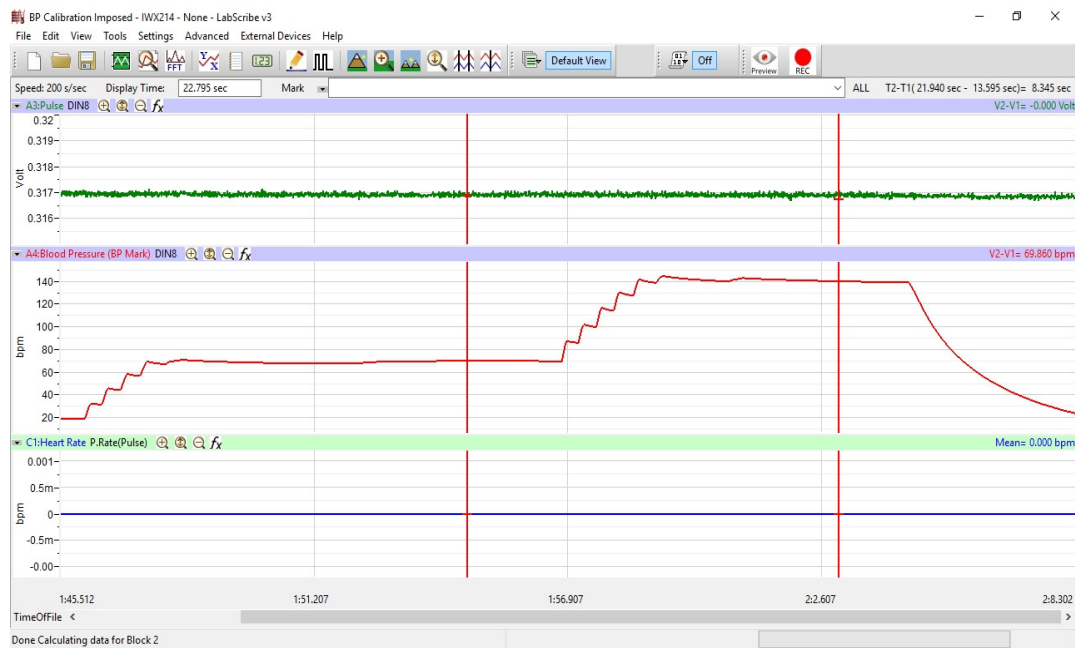


Figure HP-6-S4: The output of the BP-600 non-invasive blood pressure transducer displayed on the Main window with cursors at the points where the pressures in the cuff were 70 and 140 mmHg.

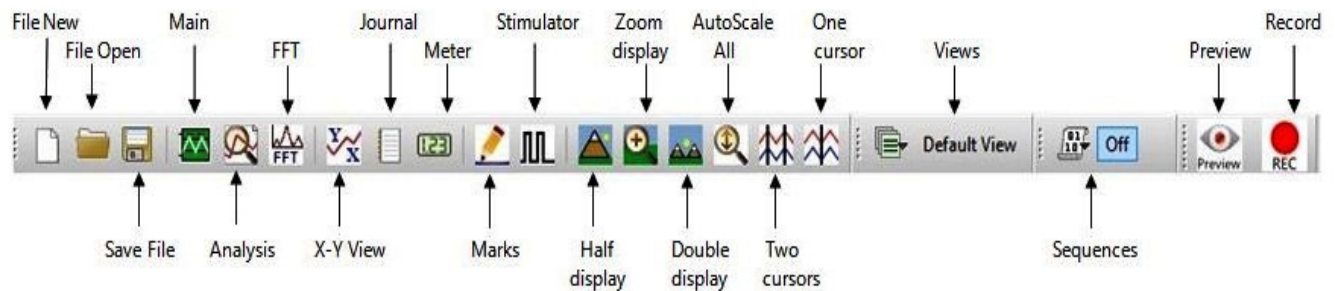


Figure HP-6-S5: The LabScribe toolbar.

4. To convert the voltages at the positions of the cursors to pressure values, use the Simple Units Conversion dialogue window ([Figure HP-6-S6](#)). Click V2-V1 on the right side of the Blood Pressure channel and click Simple.
5. On the units conversion window:
 - Make sure 2 point calibration is selected in the pull-down menu in the upper-left corner of the window.
 - Put a check mark in the box next to Apply units to all blocks. Notice that the voltages from the positions of the cursors are automatically entered into the value equations.
 - Enter the two pressures used in the calibration recording in the corresponding boxes on the right side of the conversion equations.
 - Enter the name of the units, mmHg.

- Click on the OK button in the lower right corner to activate the units conversion.

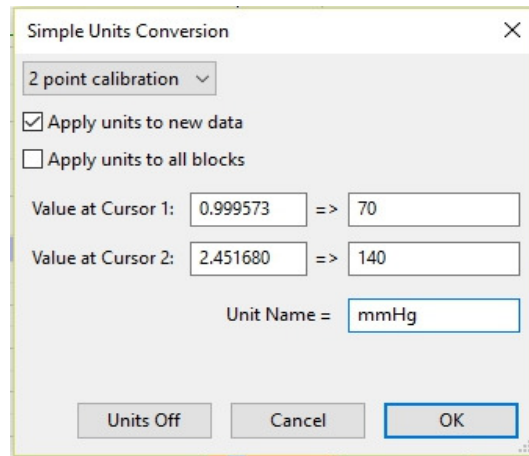


Figure HP-6-S6: The Simple Units Conversion dialogue window with the voltages at the cursors set to equal the pressures used in calibration.