

## Fiber Optic Catheter Blood Pressure Recording and Analysis System (IX-404)

### System Includes

IX-404 Data Recorder

IA-BPFO2 Amplifier for Fiber Optic Pressure Sensors

USB Power Supply

A-IBPFOC 1f Fiber Optic Catheter (300 mmHg pressure range)

C-USB Cable

C-USB-C Cable

C-USG-B Grounding Cable

LS-BP LabScribe Blood Pressure Analysis Module



Figure 1: RS-IBPFOx System

## IX-404 Setup

1. Locate the C-USB cable.
2. Plug the C-USB cable into the USB port on the rear of the IX-404. The opposite end will plug into your computer's USB port.



*Figure 2: IX-404 Recorder (Rear).*

3. A green power light will illuminate on the front of the device indicating it is receiving power.

## IA-IBPFO2 Setup



*Figure 3: Front Panel Channel 1 input (P1) and Channel 2 input (P2)*



*Figure 4: **Back Panel** USB-C Power Input, Channel 1 BNC Analog Output (OUT1), Channel 2 BNC Analog Output (OUT2), Optional Ground Port*

1. Power the IA-BPFO2 using a USB cable, connected to the rear of the device (POWER port).
2. Use a BNC-BNC cable (C-BNC) to connect the OUT1 to a BNC input (CH 1) on the IX-404.
3. If using a second catheter, plug a second C-BNC cable from OUT2 to CH 2 on the IX-404.

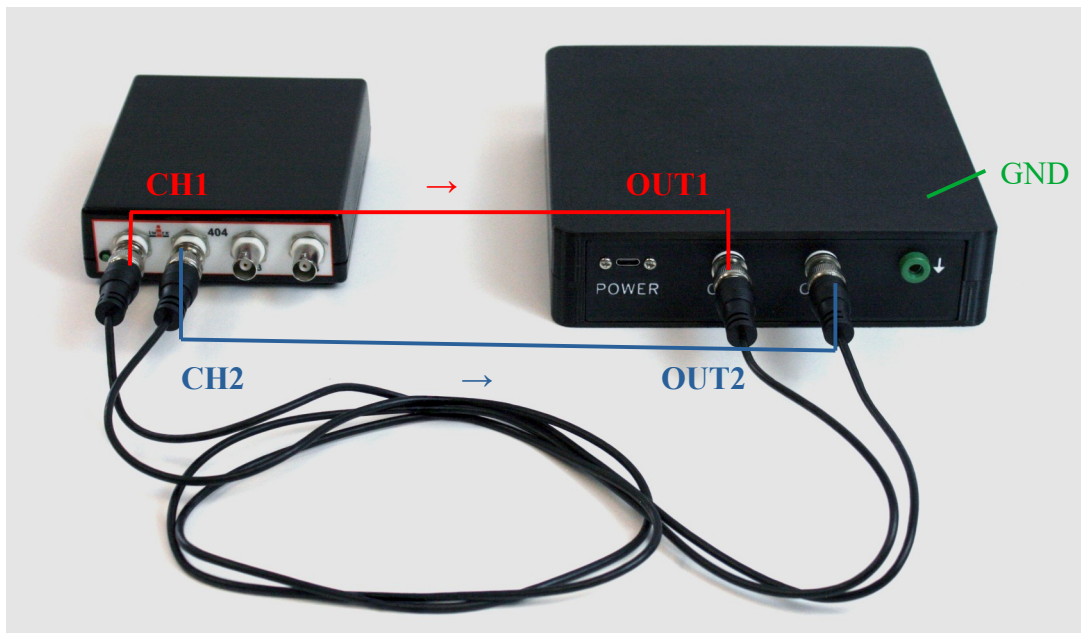


*Figure 5: BNC-BNC cable connections from the IX-404 to the IA-BPFO2 Amplifier.*

4. The optional USG-B cable can be used (green grounding port) to connect the IA-BPFO2 to ground.

## Connecting Fiber Optic Catheters

1. Remove dust caps from the fiber-optic catheter connector ports.
2. Carefully insert the catheter into the input port. The connector will click in.

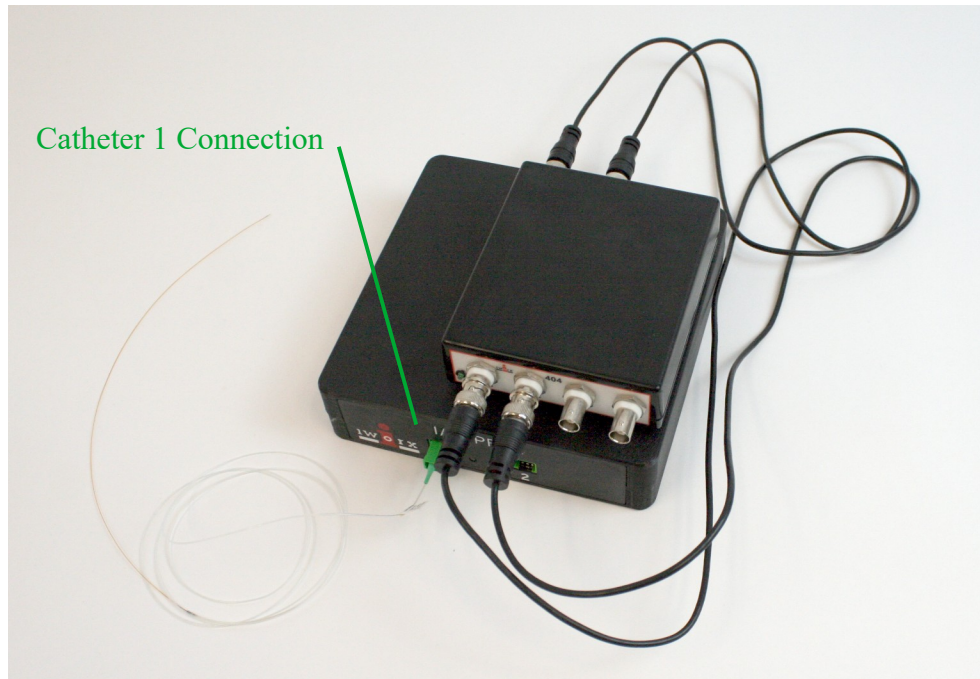


Figure 6: Catheter connection on the IA-BPFO2.

3. Verify the IA-BPFO2 LEDs indicate active signal detection. The LED should indicate steady green.

### LED Indicators

No LED

Slow pulsing (every 2-3 seconds) yellow

Fast pulsing yellow

Solid yellow

Steady green

Alternating flashing yellow and green

No power

No sensor connected

Sensor is connected but no optic or signal is lost

Sensor is connected but no zero performed

Sensor is ready, zero performed

System ping to identify the system

*Note: A zero has already been performed on the catheter prior to shipment.*

## LabScribe Software Setup

1. Download LabScribe software. Information on software installation can be found on the iWorx web page under Support → Getting Started: [Software Installation - iWorx Systems Inc](#)

***Note:** On the LabScribe Software Download Page, there is a tutorial video titled “[LabScribe101 – Basic Training](#)” This video is a basic introduction to LabScribe to learn how to set-up, record and analyze your data.*

2. From the Main window, select the Settings tab and then click on “Load Group...”.

Locate the Research Settings folder (default location is: C:\Program Files\iWorx\Labscribe\Research Settings...), Open the 118-300-400-Settings folder which contains the settings group Research118-300-400.iwxgrp. Select this group and click Open.

Select the Settings tab. Below “Default Setting” is a list of settings, select the Blood Pressure menu and then the RS-IBPFO settings file that corresponds to the number of channels you will be recording from.

LabScribe will be configured by the settings file, and a pdf setup document will open.

Note: if you do not see the Research Settings folder in the LabScribe folder, Reinstall LabScribe, making sure that the Research settings are installed. Alternatively, enable the A1/A2/A3/A4 BNC recording channel(s) in the Edit → Preferences menu. Set the sampling speed to 500 s/sec.

## Calibration Setup

Tutorial Video: <https://youtu.be/6kIBLKmijwE>

Calibration accessories required: BP-CalKit, Touhy-Borst Adaptor

1. Open the BP-CalKit. Plug the female luer connector into the black tubing.

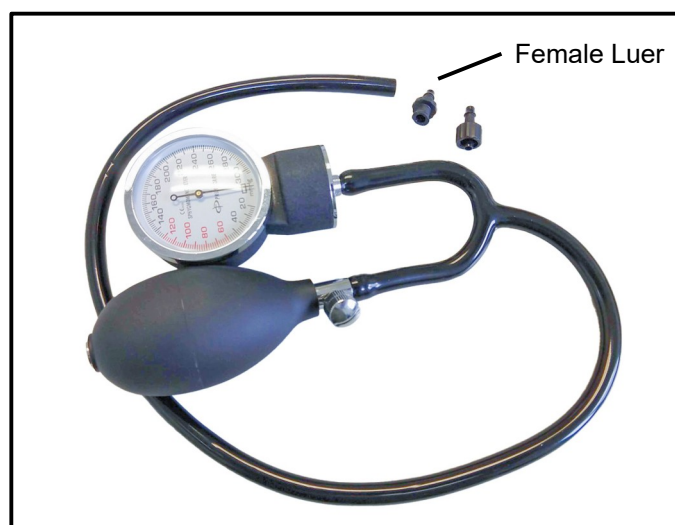


Figure 7: BP-CalKit.

2. Insert the tip of the catheter into the Tuohy-Borst adapter, so that the tip is just inside the male luer connector as shown.
3. The Tuohy-Borst adapter has an adjustable hole, which can be resized by twisting the barrel. Turn the barrel to secure the adapter around the catheter.

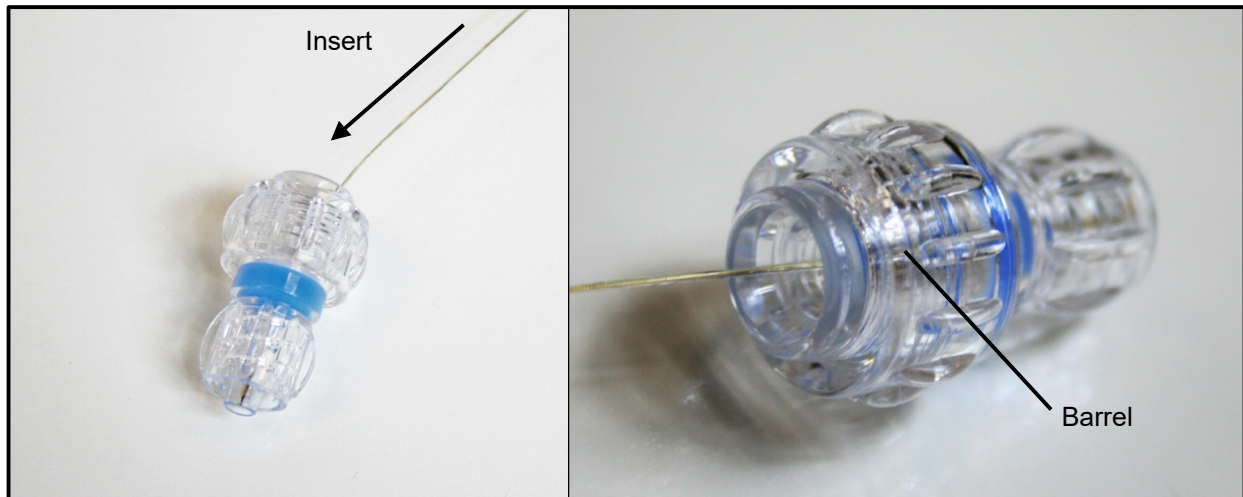


*Figure 8: Tuohy-Borst adapter with catheter inserted.*

4. Connect the BP-CalKit to the Tuohy-Borst adapter by twisting the tubing.

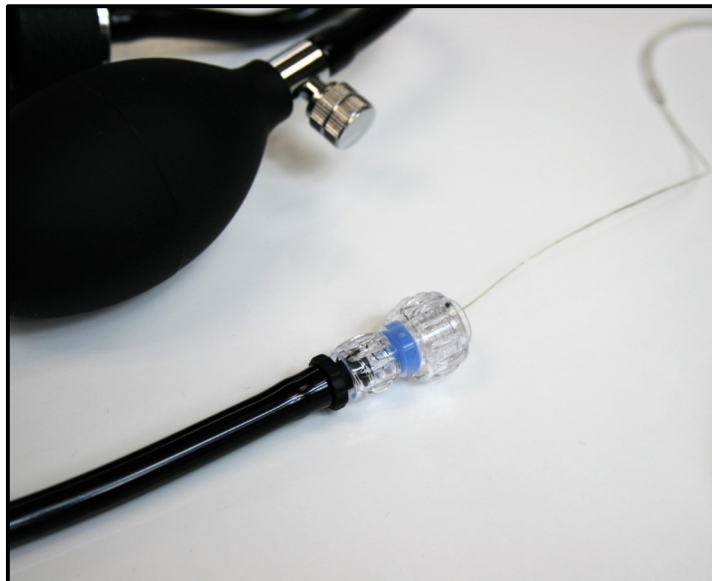


*Figure 6: Catheter connected to the Tuohy-Borst adapter. The Tuohy-Borst adapter is connected to the black tubing using a female luer connector.*

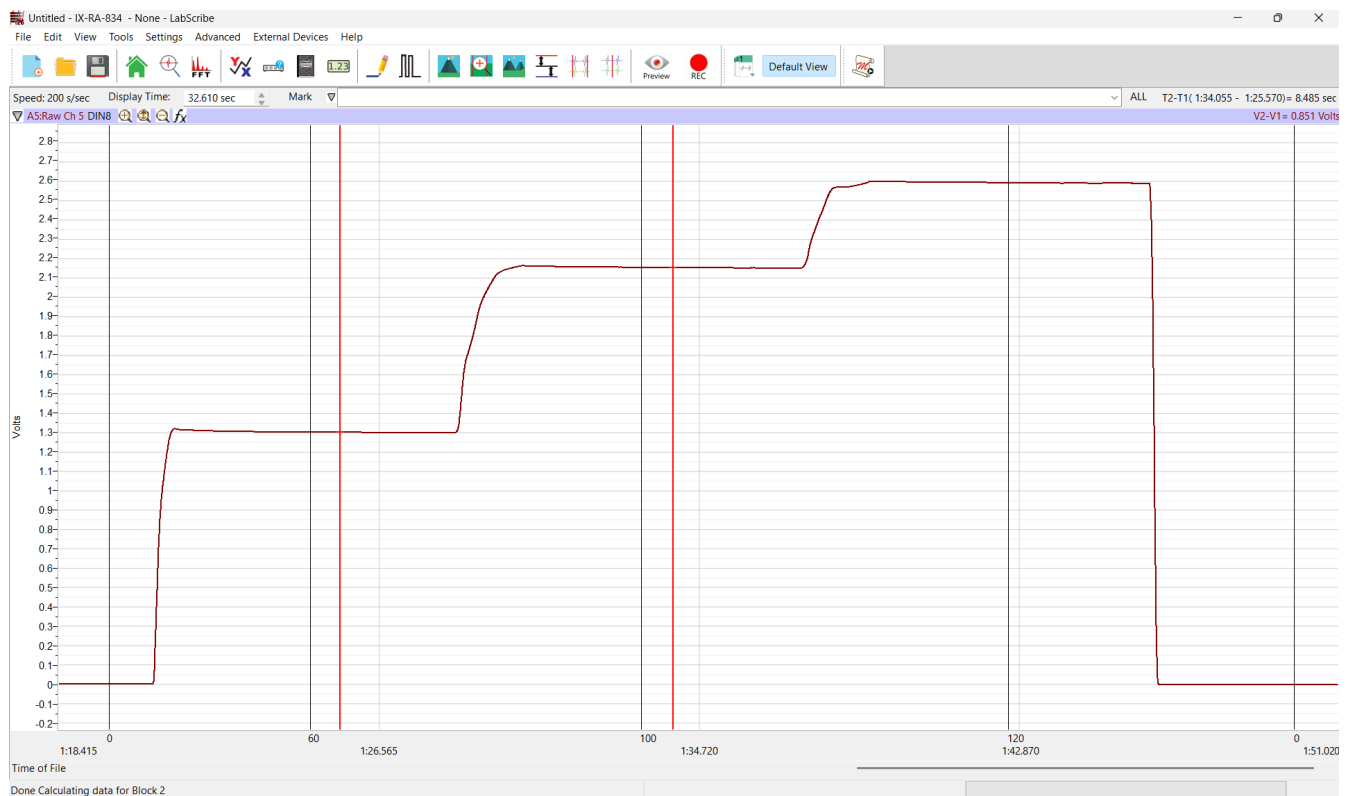
## LabScribe Software Calibration

1. Press the red REC button to start the recording.
2. Increase the pressure, using the bulb to 60 mmHg. Hold the pressure steady for a few seconds.

Note: If the pressure does not hold steady, tighten the Touhy-Borst adapter.

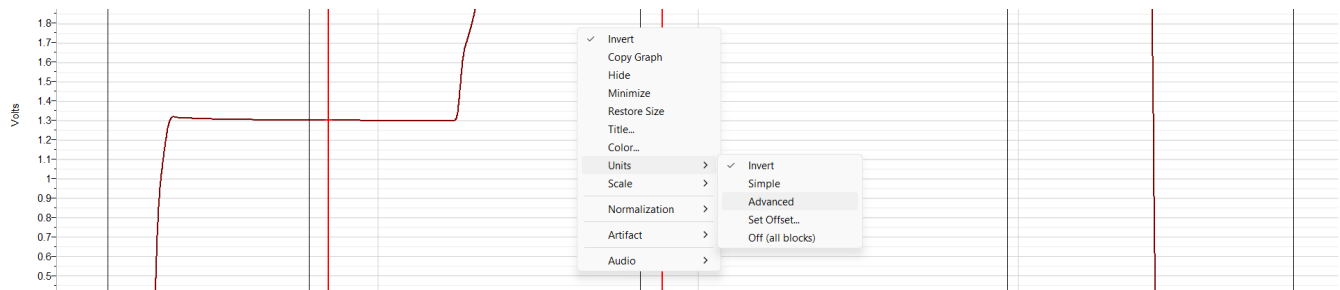
Type “60” into the Mark box at the top of the toolbar and press enter.

3. Increase the pressure, using the bulb, to 100 mmHg. Hold the pressure steady for a few seconds.
4. Type “100” into the Mark box at the top of the toolbar and press enter.
5. Stop the recording by pressing the black STOP button.

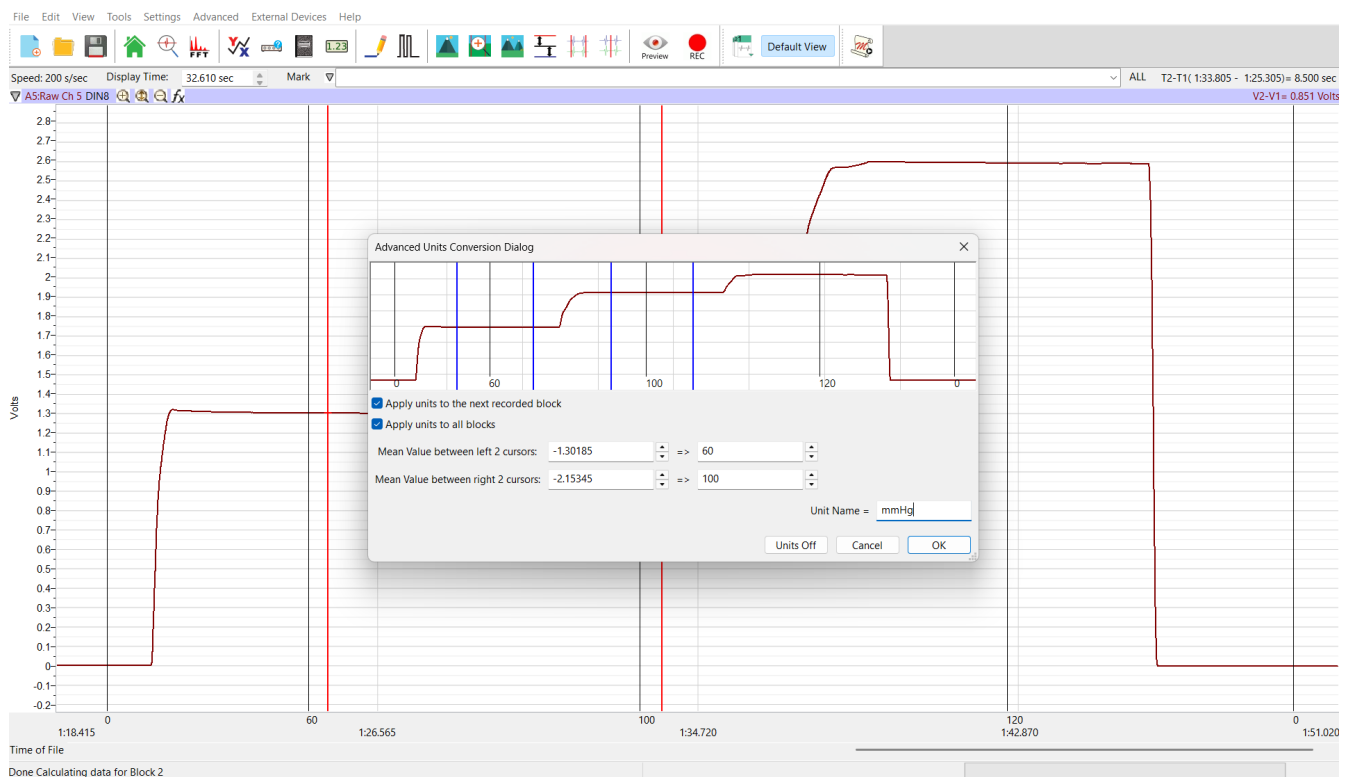


## Unit Conversion

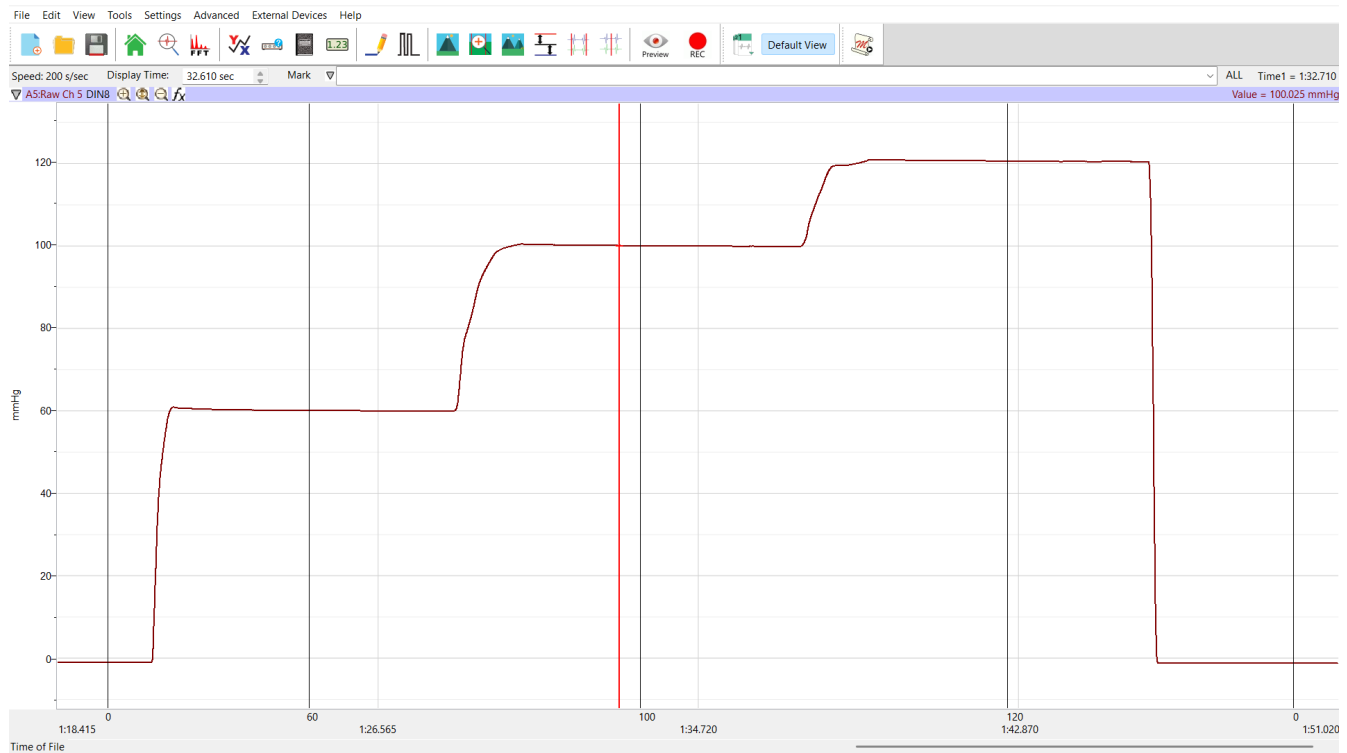
1. Right click on the pressure channel and choose Units → Advanced.



2. Place the left 2 cursors over the region that corresponds to 60 mmHg.
3. Place the right 2 cursors over the region that corresponds to 100 mmHg.
4. Check the Apply units to the next recorded block.
5. Check the Apply units to all blocks. This will apply the units to channel on all the previously recorded blocks.
6. Set the values in the right side text boxes to 60 (mean value between left 2 cursors) and 100 (mean value between right 2 cursors).
7. Set the units to mmHg.
8. Click OK.



The channel is now calibrated to read in mmHg. Use the single cursor mode to check the values to ensure the calibration is accurate.



## Recording

1. Initiate recording by pressing the red icon labeled “**REC**”. The icon will now change to black and be labeled “**STOP**”.



1. Select the ‘AutoScale all Channels’ button at the top of the toolbar.



- This button can be pressed as many times as necessary throughout recording, or the recording can be continually AutoScaled in real time by selecting: View → Display → and Online AutoOffset. This will use the mean values of your data to adjust the trace view so you don't need to keep clicking Autoscale.

2. When the recording is finished Click the “STOP” icon.

## LabScribe Software Analysis

To open the available analysis options in the Advanced BP Analysis Module, select: **Advanced – Blood Pressure – Offline Calculations.**

Tutorial Video: <https://www.youtube.com/watch?v=BT-0IENWPPQ>

Detailed information on the Blood Pressure Analysis Module can be found in the LabScribe manual by navigating to:

- In the LabScribe toolbar Select: Help → Help (Manual)

