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#PH144 - Hand Dynamometer Calibration



This note can also be used for the older model SS25L



The multi-purpose SS25L hand dynamometer adds a new dimension to force measurements. This fully isometric transducer can be used in the traditional hand grip strength fashion, pulled apart by both hands, or mounted against a wall and pulled.

When using this older model hand dynamometer, the proper hand placement is at the uppermost portion of the foam grip, directly below the dynagrip connections.

Use the hand dynamometer to measure clench force. The lightweight, ergonomically designed transducer provides direct readings in kilograms or pounds. Use in isolation or combine with EMG recordings for in-

depth studies of muscular activity. The isometric design improves experiment repeatability and accuracy. The SS25LA has a 3 meter cable terminated in a Simple Sensor for direct connection to the Biopac Student Lab System (MP35 or MP30 unit). Simple calibration procedure makes this device very easy to use. With the proper equipment and correct scaling techniques described below, precise force measurements can be obtained.

Equipment

- SS25LA Student Lab Hand Dynamometer
- MP35/30 Biopac Student Lab System

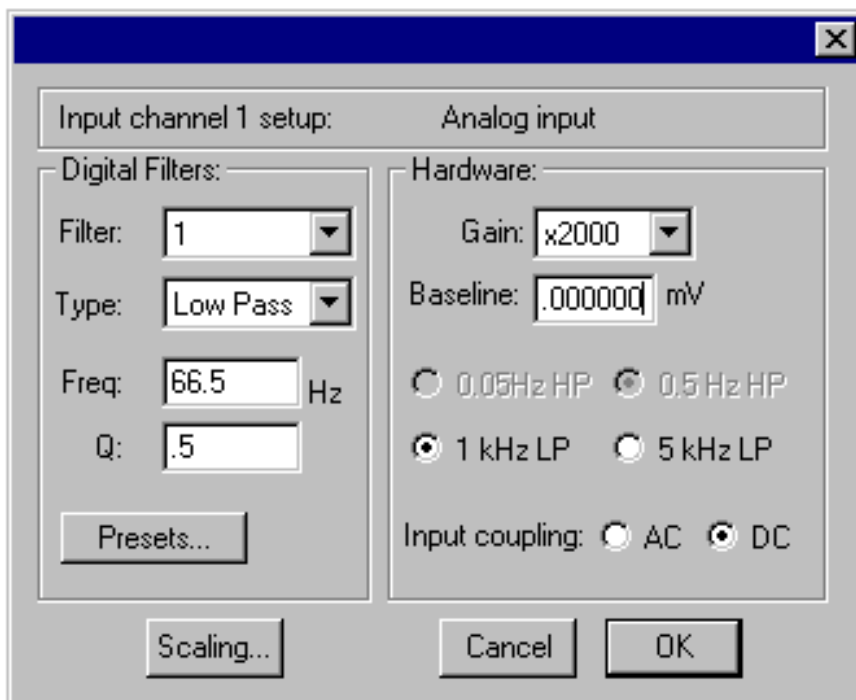
Hardware Setup

Connect the SS25LA to the Biopac Student Lab.

Software Setup for the Biopac Student Lab

Using the Preset function for hand dynamometer recordings:

1. Note which MP3X input channel the SS25LA is plugged into.
2. Pull down the MP3A menu and select Set Up Channels.
 - a. Check the Analog option.
 - b. Click on the Acquire, Plot, and Values options.
3. Click on Setup to generate an Input Channels setup window.
4. Click on the Presets button and scroll down to select Hand Dynamometer.



5. Click OK to accept the Presets and close the Setup window.

Scaling Software Setup for the Hand Dynamometer

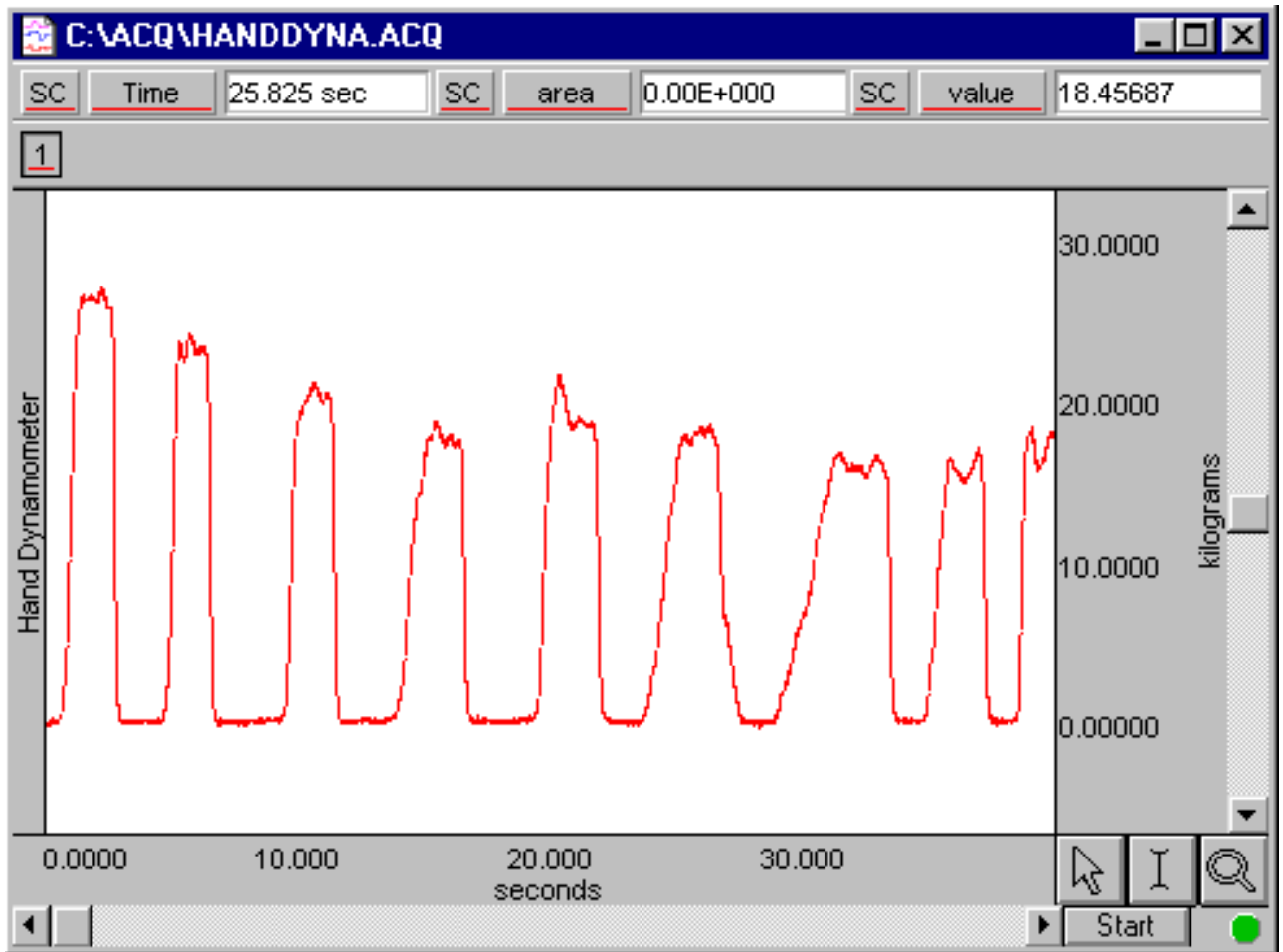
1. Select Set up Channels under the MP3X menu.
 - a. enable one analog channel.
2. Click on the Setup button.
3. Click on the Scaling button to activate the dialog box.

	Input value		Map value
Cal1	0.01835	mV	0
Cal2	0.0841	mV	1
Units label:	kg		

- a. In the Scale Value column, enter the scaling factors:
Cal 1 = "0" and **Cal 2 = "1"**
These represent 0 and 1 kilograms, respectively.
 - b. Enter "Kg" for the units label.
4. Rest the SS25LA on a table or flat surface.
 5. Click the **Cal 1** button to generate a calibration reading.
 6. To obtain a value for **Cal 2** box, add 35 micro-volt per kg to the value from the Cal 1 box.
 - o If using the older model SS25L, add 65.75 micro-volt per kg.

Testing Calibration

1. Place the hand dynamometer on a flat surface.
2. Start acquiring data.
3. Place a known weight on the uppermost portion of the grip.
4. Check the weight in the software display.
 - o The weight should be reflected accurately in the data acquired.



Sample Data

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