

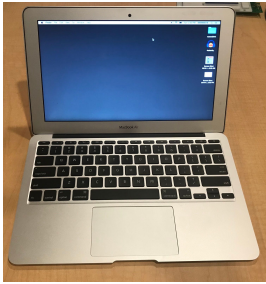
EM1 Test & Calibration Process

Testing tools needed :

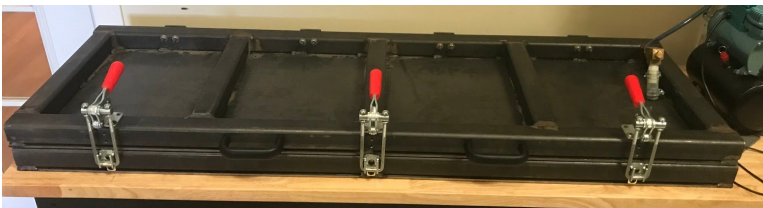
- USB A-B Cable



- MacBook Air (malletSTATION test computer) with v6.4 calibration software installed + Sysex Librarian



- Sysex Librarian software with latest Malletstation FW .syx file (malletStation_v1.0.73.syx as of 11-26-19)
- Calibration Jig



Initial Setup :

(note - this step only needs to be performed once, and verified at the start of a calibration session)



- With the pressure switch closed - adjust the **Precision Regulator** (pictured above) to **8psi** (as seen with the manometer)



- This setting can be locked on the regulator, and adjusted as necessary to maintain this pressure of **8psi** in the final step of calibration.

1. Setup

Open malletSTATION test software CalibrateWithAverageLows_v6.4

The screenshot displays the malletSTATION test software interface. At the top, there is a grid of 42 sensor readings, each represented by a small box with a red header and a green footer. The readings are organized into two rows of 21 columns each. The first row of readings is labeled with numbers 1 through 41, and the second row is labeled with numbers 0 through 42. Each reading box contains four values: 'avg pressure' (999), 'tare' (999), 'avg-tare' (999), and 'live value' (999.0). Below the grid, there is a section titled 'SET THESE FIRST' with a red background. This section contains a form for entering the 'Serial Number' (EM1000166) and a dropdown for 'factory location' (RSP). Below this, there are six numbered steps for the calibration process, each with a checkbox and a description. Step 1: Scan for devices. Step 2: Check version info / patch compatibility. Step 3: Start node script. Step 4: Verify Bladder Calibration Data Cleared. Step 5: Capture resting values. Step 6: Calibrate. To the right of the steps, there are two large circular buttons labeled 'Pass' and 'Fail'. At the bottom of the interface, there is a bar with the text 'excursion threshold: 50'.

Row	Col	Label	avg pressure	tare	avg-tare	gain	average low	live value
1	1	1	999	999	999	999.0	999	999
1	2	3	999	999	999	999.0	999	999
1	3	5	999	999	999	999.0	999	999
1	4	7	999	999	999	999.0	999	999
1	5	9	999	999	999	999.0	999	999
1	6	11	999	999	999	999.0	999	999
1	7	13	999	999	999	999.0	999	999
1	8	15	999	999	999	999.0	999	999
1	9	17	999	999	999	999.0	999	999
1	10	19	999	999	999	999.0	999	999
1	11	21	999	999	999	999.0	999	999
1	12	23	999	999	999	999.0	999	999
1	13	25	999	999	999	999.0	999	999
1	14	27	999	999	999	999.0	999	999
1	15	29	999	999	999	999.0	999	999
1	16	31	999	999	999	999.0	999	999
1	17	33	999	999	999	999.0	999	999
1	18	35	999	999	999	999.0	999	999
1	19	37	999	999	999	999.0	999	999
1	20	39	999	999	999	999.0	999	999
1	21	41	999	999	999	999.0	999	999
2	1	0	999	999	999	999.0	999	999
2	2	2	999	999	999	999.0	999	999
2	3	4	999	999	999	999.0	999	999
2	4	6	999	999	999	999.0	999	999
2	5	8	999	999	999	999.0	999	999
2	6	10	999	999	999	999.0	999	999
2	7	12	999	999	999	999.0	999	999
2	8	14	999	999	999	999.0	999	999
2	9	16	999	999	999	999.0	999	999
2	10	18	999	999	999	999.0	999	999
2	11	20	999	999	999	999.0	999	999
2	12	22	999	999	999	999.0	999	999
2	13	24	999	999	999	999.0	999	999
2	14	26	999	999	999	999.0	999	999
2	15	28	999	999	999	999.0	999	999
2	16	30	999	999	999	999.0	999	999
2	17	32	999	999	999	999.0	999	999
2	18	34	999	999	999	999.0	999	999
2	19	36	999	999	999	999.0	999	999
2	20	38	999	999	999	999.0	999	999
2	21	40	999	999	999	999.0	999	999
2	22	42	999	999	999	999.0	999	999

SET THESE FIRST

enter Serial Number: EM1000166

factory location: RSP

- ☐ Scan for devices
- ☐ Check version info / patch compatibility
- ☐ Start node script
- ☐ Verify Bladder Calibration Data Cleared
- ☐ Capture resting values
- ☐ Calibrate

Close / Lock Calibration Jig

RESET TEST

excursion threshold: 50

Pass

Fail

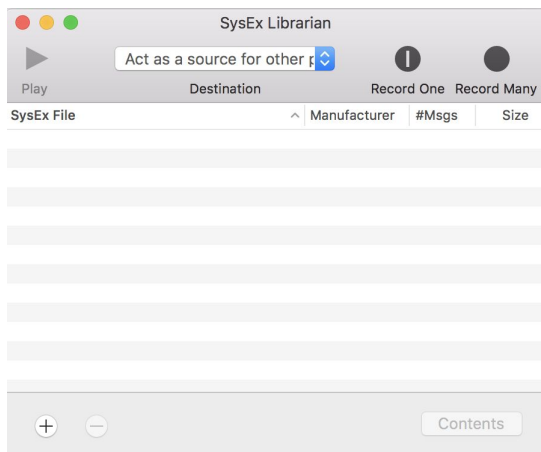
Load malletSTATION into bladder test jig

- Plug in USB cable to malletSTATION and test computer

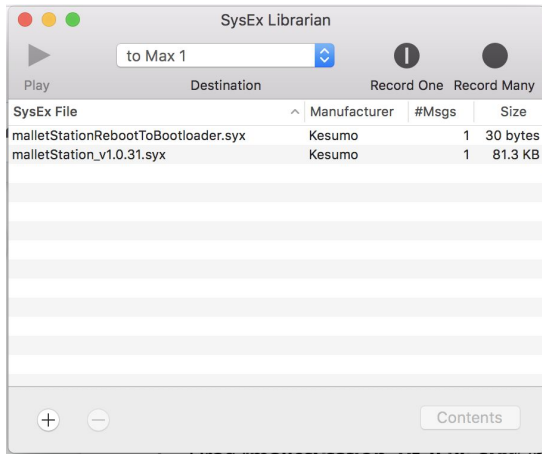


2. Firmware Update

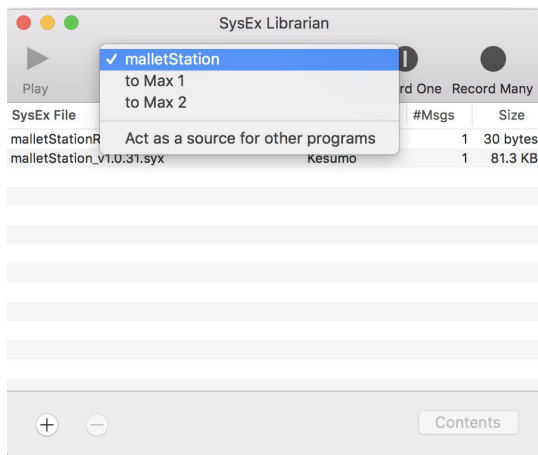
Launch Sysex Librarian



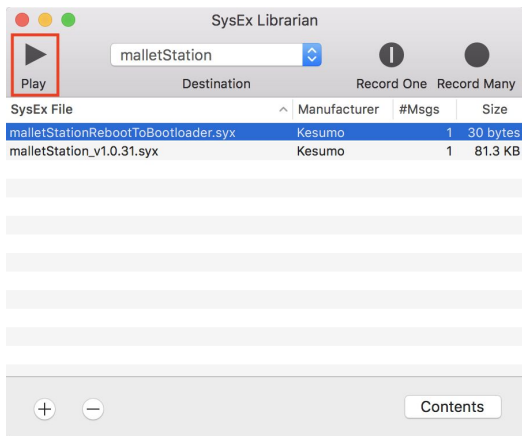
- Drag “malletStationRebootToBootloader.syx” into the Sysex Librarian window
- Drag “malletStation_v1.0.73.syx” into the Sysex Librarian window



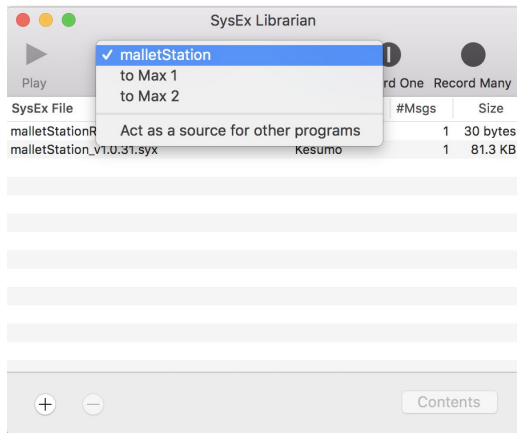
- Select “**malletSTATION**” as the destination device



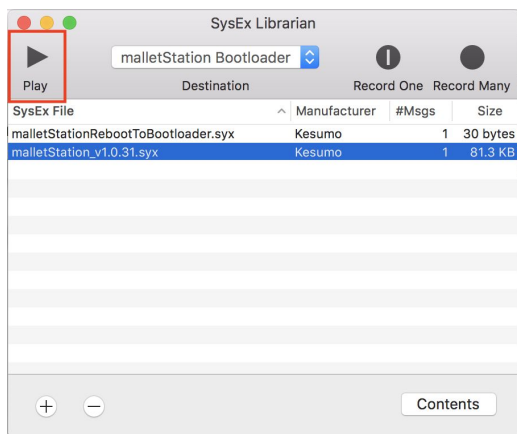
- Select “**malletStationRebootToBootloader.syx**” in the Sysex Librarian window and press the “**Play**” button



- Select “**malletSTATION Bootloader**” as the destination device

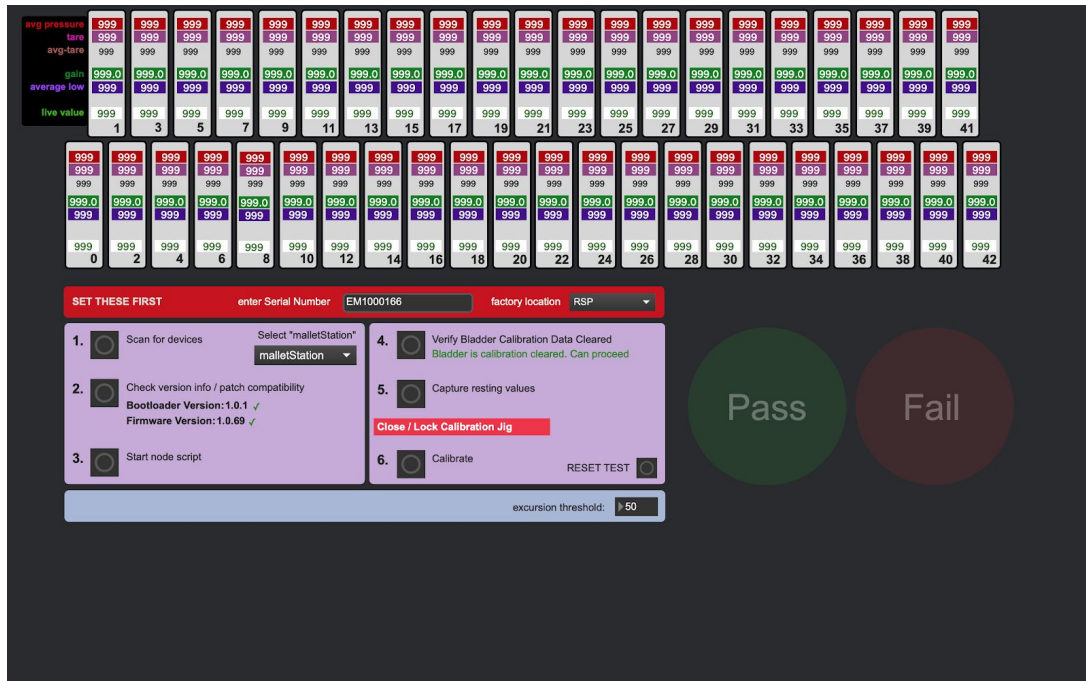


- Select “**malletStation_v1.0.73.syx**” in the Sysex Librarian window and press the “**Play**” button

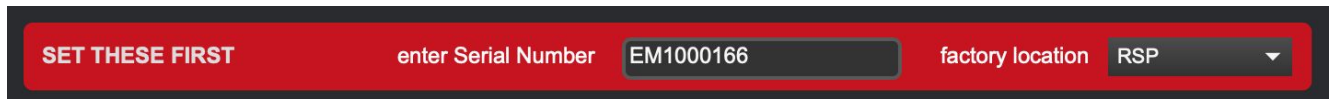


3. Calibrate

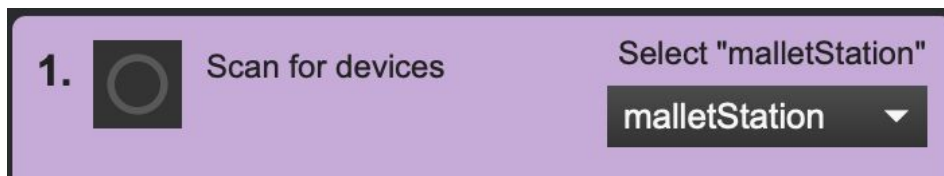
Connect malletSTATION to **EM1-Calibration-v6.5.app** software



1. Enter the serial number of the unit being calibrated and make sure the correct factory location is selected :



2. Press the “**Scan for Devices**” button (this will automatically select **Malletstation** from the drop down menu)




3. Press the **Check version info** button to confirm successful firmware update




4. Press the **Start Node Script** button

3. Start node script

5. Press the **Verify Bladder Calibration Data Cleared** button to confirm successful firmware update

4.  Verify Bladder Calibration Data Cleared
Bladder is calibration cleared. Can proceed

6. Press the **Capture Resting Values** button (make sure the calibration jig is **OPEN**)

5.  Capture resting values

(this stage requires a few moments to finish - please watch the values change and notice that they will update with new data once this step is complete)

- Note that the **Tare** and **Live Values** fields are populated with new data, (constant small changes in these values are normal and expected):

[illegible]

- The resting values of the unit have been captured - if successful the message shown below in green will appear

5.



Capture resting values

Resting values Captured. Can proceed

- If this message is shown close and lock the calibration jig and proceed to **Step 6**

- If any keys are out of range, those keys will light up **red** and this unit has **FAILED** (the silicone containing that key will need to be rebuilt with replaced fabric)



- If there are no failed keys, close the Calibration Jig:



- Set the pressure regulator to **0.8psi** and verify on the manometer :



- Switch the pressure valve to fill



7. Once the bladder has filled, press the **Calibrate** button

Confirm that the pressure gauge indicates 0.8psi when the switch is set to **Fill**.

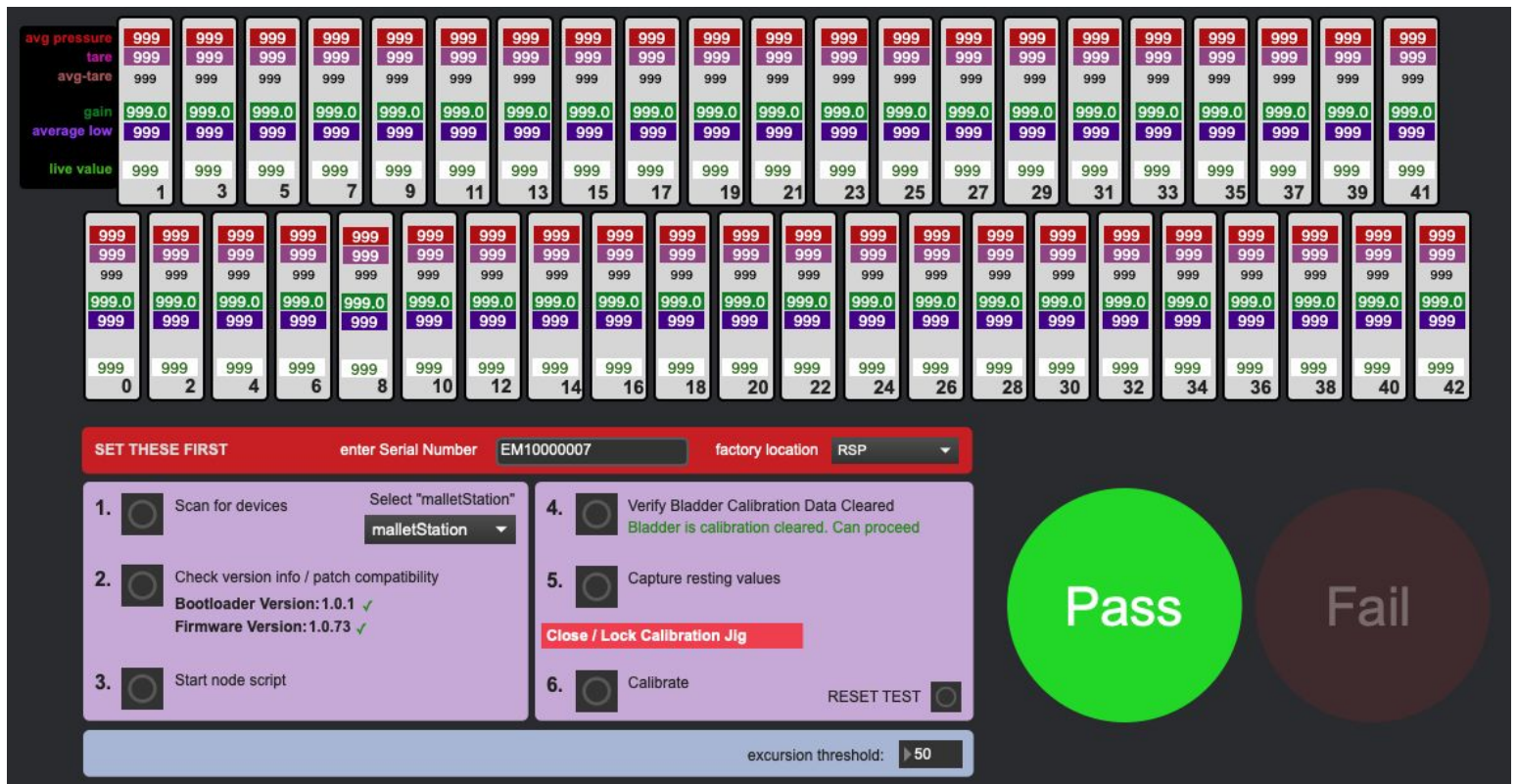
Press the **Calibrate** button :

6.



Calibrate

- The pressure will be read by the Malletstation and the values will be sent to the Calibration software.
- If all the sensors are detected as reporting correctly then the calibration values will be sent to the unit and the software will display **PASS**.



- (If **FAIL** displays the unit has one or more boards which contain fabric that has insufficient range and will need to be rebuilt with new fabric)

