



QuantiForce Brass PRO - User Manual

Thank you for purchasing QuantiForce Brass PRO/PRO SLIM, Bonsai's innovative companion for playing brass instruments. In this document you find the instructions to set up your QuantiForce sensor and to operate it. Please read carefully this document before using your QuantiForce sensor. We constantly improve our products: Make sure to visit our support page to access further details, frequently asked questions, latest instructions and video tutorials:

<http://www.bonsai-systems.com/support/brass/>

A. Preliminary Steps

1. Charge the QuantiForce Sensor

Connect the sensor to a standard USB charger (5V, e.g. any mobile phone charger) using the provided micro-usb cable to charge the sensor. After a few seconds, an orange light will light up on the sensor indicating that the battery is being charged. When charging the sensor for the first time, it could take several minutes before it starts charging. On the first charge, please do not disconnect the charger until the sensor is fully charged. When this is the case, the orange light will be off and a green light will blink.



2. Download the Logger App

Scan the QR Code or go to

<http://appstore.com/loggerbybonsaisystems>

to download the Logger app onto your iOS device. Apple devices running iOS 9 or later with Bluetooth 4.0 or newer are compatible.

B. Basic Usage

Congratulations, you are now ready to start using QuantiForce Brass PRO/PRO SLIM! Please follow the subsequent instructions to get going.

1. Enable Bluetooth and Start the Logger App

Make sure that Bluetooth is activated on your iOS device, then start the Logger app.

2. Select Sensor

A few seconds after starting the app a list appears with all sensors that are in reach. Tap on the sensor that you would like to use. If you have more than one sensor, you find the default name on the label applied to the sensor itself.

3. Mount onto the Instrument

Mounting instructions can be found on our support site (select "QuantiForce Brass -> Mounting Guide and scroll to the appropriate sensor version):

<http://www.bonsai-systems.com/support/brass/>

and on our Youtube Channel:

<https://www.youtube.com/channel/UCY2jEQnqRenfwOyvco3gWuA>

Troubleshooting the mounting position

Each instrument has slightly different elements at the end of the pipe. Try to adjust the position of the blocking clamp at the back of the sensor so that the sensor forms a 90° angle to the pipe, otherwise it will malfunction.

If you do not find a way to mount the sensor so that it sits correctly, please contact us at info@bonsai-systems.com and send us pictures of the pipe and mouthpiece.

Start using the sensor

Now you are set. You can tap on the instructions to close them and start using the sensor. By default, the visualization with the live force in kilograms will be displayed. Note: should you need to visualize the instructions again later, tap on the small (i) next to the sensor name on the main app screen and you will find a link to the instructions.

4. Set the Zero Point

Keep the trumpet horizontal and tap on the "↓0" button on the lower left side of the force display to set the force reading to zero. Should the "↓0" button be invisible, first tap on the force display to reveal it. Congratulations, you are now good to go!

5. Switch off the QuantiForce sensor

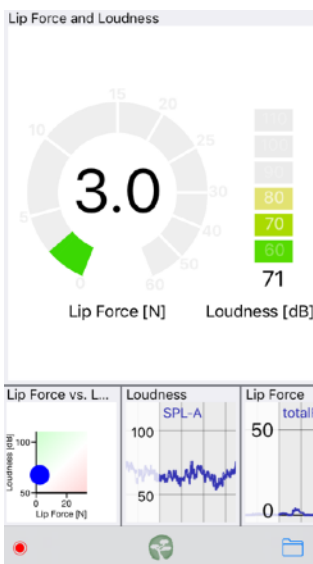
In order to disconnect the sensor, tap on the Bonsai logo in the lower screen part in the app and select "Close". The green LED on the sensor is turned off and the sensor goes to a stand-by mode consuming very little power.

C. Advanced Sensor Configuration

1. Configuration Options for QuantiForce

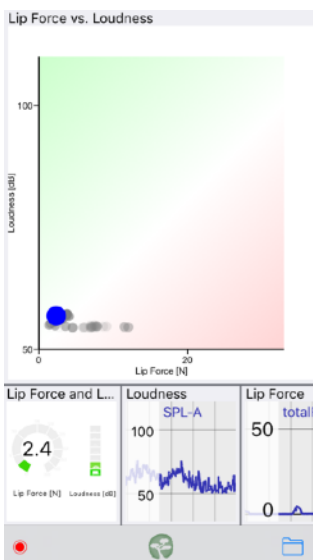
If you would like to customize what will be shown on your screen when using the sensor, tap on the small (i) next to the sensor name on the main app screen. You will be guided through various options, including the possibility to load a previously saved configuration, the choice whether to activate or deactivate different visualizations and the choice of the unit of measure. The visualizations are described below.

2. Visualizations



a) Lip Force and Loudness Diagram

In this visualization the force is shown on the left in kilograms or Newtons ($9.8 \text{ N} = 1 \text{ kg}$). On the right, the loudness is shown in dB-A.



b) Lip Force vs. Loudness Diagram

In this visualization the loudness is plotted against the force in the same graph. The blue circle represents the instantaneous values, whereas the values of the last few instants are drawn with a light gray shadow. This visualization is suitable for different exercises. Try to play a certain note at a constant volume, then try to reduce the applied force. The blue circle should move to the left towards the green area. Try to play a certain note with a certain applied force, then get louder without increasing the force. This will move the blue circle upwards along a vertical line.



c) Lip Force / Loudness line graphs

Line graphs are available to simply view the evolution of the lip force or of the loudness over time. The amount of the time shown within the graph can be changed (zoom level). In order to set the time, rotate the mobile phone / tablet, so that it is in "landscape" mode. Then tap onto the graph. Boxes containing times between 5 seconds and 12 hours will appear. Tap onto the appropriate value.

d) Viewing a specific value

In order to see which value was achieved in a certain spot on the graph, tap and keep the finger on the plot until a cursor and a number appear. By moving the finger back and forth, the cursor is moved to the desired position.

e) Scrolling back on a line graph

Whenever on a line graph, you can always scroll back to see previous values. This is obtained by just swiping the graph towards the right of the screen. Tipp: it is sometimes more efficient to first decrease the zoom level (tap on the plot and select for example 1 minute as a time window) and then scroll back. When scrolling on a graph, live data will be paused. To resume, tap on the play button in the bottom left corner of the screen.

3. Setting Realtime Bio-Feedback

For certain exercises it can be useful to set a threshold, for example on the maximum force or loudness that you want to play with. Instead of having to read the values constantly, the Logger offers the possibility to activate a bio-feedback mechanism which turns the screen contour red whenever a value is exceeded. To activate this follow these steps:

1. Select a visualization containing a line graph, for example the "Loudness" graph.
2. Tap on the screen. Some extra elements will appear, including two small red triangles. Tap and drag the triangles to set an upper and/or a lower threshold. Whenever the value goes beyond the threshold(s), the screen border will turn red.
3. To remove the thresholds, drag them to the top/bottom of the screen following the previous procedure.

D. Advanced App Features

1. Navigation

- The default layout displays one large visualization and further visualizations are displayed smaller. Touch one of the small visualizations to see it large. You may need to scroll the list of small visualizations to see all of them.
- The list layout displays all visualizations with the same width in a vertical list. You may need to scroll vertically to see all visualizations.
- Touch the Bonsai icon in the toolbar and select “Switch Layout” to switch between the two layouts.

2. Recording

To start a recording touch the recording button in the lower left corner. If you enabled screen recording in step 3 above (section "basic usage") you will be asked if audio should be included. A timer is displayed in the toolbar while the app is recording. To stop the recording touch the stop button in the lower left corner. Note: screen recording is available only on Apple devices with iOS version 11 or newer.

To replay a recording, tap on the symbol on the bottom right of the screen. A list of recordings will appear. Each recording can be shared using the standard "share symbol".

3. Add More Sensors/Visualizations

1. Touch the Bonsai icon in the toolbar and select “Add more ...”
2. Choose the a sensor node from the list
3. Select the data stream and visualization you like to add.

4. Rearrange or Remove Visualizations

Long press on the title of a visualization until it is highlighted, then drag it to rearrange or tap on the delete icon to remove the visualization.

5. Rename Visualization

Long press on the title of a visualization until it changes to blue color, then tap once again on the title to edit.

6. Save Configuration

Touch the Bonsai icon in the toolbar and select “Save as ...” to save the current configuration. Saved configurations appear on the start screen for quick access.

E. Technical Specifications

Battery	
Runtime in active mode	12 hours
Runtime in stand-by	1 year
Sensor specifications	
Force update rate	50 Hz
Loudness update rate	50 Hz
Force error	< 0.01 kg
Loudness error	< 2 dBA
Physical dimensions	
Size	90 x 50 x 12 mm
Weight	80 g

F. Troubleshooting

In the following table, a set of possible issues are listed, along with possible solutions. If you have an issue, please read carefully this section and the online "Frequently Asked Questions" section available at <http://www.bonsai-systems.com/support/brass/faq/> . Should the issue persist, please contact us at info@bonsai-systems.com. We will do our best to provide an answer as soon as possible.

Problem	Possible solutions
When I open the logger app the sensor does not appear on the list.	<ol style="list-style-type: none"> 1) Wait 30 seconds so allow the list to get populated. 2) In the phone settings, switch off Bluetooth, wait for a couple of seconds and switch Bluetooth on again. 3) Should the above solutions be insufficient, please switch off the phone/tablet and switch it on again.
If I try to add the video channel, this does not work.	Please switch off the phone/tablet and switch it on again.
I recorded a session including video, but I cannot hear the sound.	<ol style="list-style-type: none"> 1) When prompted, choose to include sound/microphone when recording. 2) In the phone/tablet settings, under "Logger", check that the "Microphone" option is activated. 3) Should the above solutions be insufficient, please switch off the phone/tablet and switch it on again.
The force values shown are plausible if I keep the sensor in my hands. As soon as I mount the sensor on the instrument, I do not get correct readings anymore.	<ol style="list-style-type: none"> 1) For quick-mounting adapters, make sure that you chose the correct adapter - see section B.3. above. 2) Check again the mounting instruction animation and the support website. 3) Make sure that the sensor sits at a 90° angle to the pipe. If the sensor is slightly misplaced, the mouthpiece will generate friction against the pipe and this will generate false (too low) force readings.

Safety Instructions

This product contains small parts. **Not suitable for small children who could inadvertently ingest them!** This product contains electronic parts and Lithium polymer batteries. Handle with care! Do not dispose of in the environment. **We recycle! Please send us back your old QuantiForce device.** Do not expose to fire, extreme temperatures, water or other liquids. Immediately stop usage if the case gets damaged. Warning: Lithium batteries can catch fire or explode if damaged! Charge QuantiForce Brass only with a standard 5V USB charger. Using other chargers may damage the battery. If the sensor becomes very hot while charging, disconnect the cable and stop immediately using the sensor. Communicate the incident to Bonsai Systems' technical support. Do not disassemble/open. Should a sensor get damaged or be malfunctioning, it must be sent back to Bonsai Systems for reparation or it has to be handled by trained personnel only.

Certifications/Declarations of conformity

QuantiForce contains low power electronic equipment and radio frequency equipment compliant with directives RED 2014/53/EU, EN 300 328 - V2.1.1, EN 301 489-01 - V1.9.2, EN 301 489-17 - V2.2.1, EN 60950 - 1:2006/A11:2009/A1:2010/A12:2011, EN 62479:2010-09, EN 50566, EN 62209-2, FCC part 15C (FCC-ID: 2AAQS-ISP130301). QuantiForce is produced in the European Union in compliance with RoHS norms.

