



Operating Instructions BT1000 Dissolution Validation and Reporting System

P/N BT1000
18Jan2023

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Revision History

Rev.	Description	Revised By	Revised On	Approved By	Approved On
A	Initial Release	N/A	N/A	M. Bortz	08Jul2022
B	Added Tachometer timeout reset procedure and corrected minor errors	M.Bortz	18Jan2023	M.Bortz	18Jan2023
C	Changed Motionics installation file name	M. Bortz	21Mar2023	M.Bortz	21Mar2023



1.0 General Information

1.1 Introduction

Thank you for purchasing the BT1000 Dissolution Validation and Reporting System. This kit contains a variety of unique measuring tools and gauges that provide an accurate reading of vessel plate levelness, paddle or basket shaft wobble, basket wobble, paddle or basket shaft verticality, paddle or basket height, vessel centering, speed, temperature, vibration and vessel verticality as described in the new FDA specifications outlining the use of an Enhanced Mechanical Calibration procedure as an alternate approach to current Apparatus Suitability procedure for Dissolution Apparatus 1 and 2 as described in the USP General Chapter <711> Dissolution. The Dissolution Validation and Reporting System is maintenance free, easy to use and should be returned to QLA once a year for recalibration.

1.2 Definitions

Multigage Reader – Program used to capture electronically generated data.

Excel – Program used to report electronically captured data.

12 CFR Part 11 -- Title 21 CFR Part 11 is the part of Title 21 of the Code of Federal Regulations that establishes the United States Food and Drug Administration (FDA) regulations on electronic records and electronic signatures (ERES).

Bluetooth -- A standard for the short-range wireless interconnection of mobile phones, computers, and other electronic devices.

Pairing -- Establishing a connection between two Bluetooth devices.

USB -- Universal serial bus, a standardized technology for attaching peripheral devices to a computer.

1.3 Product Specifications

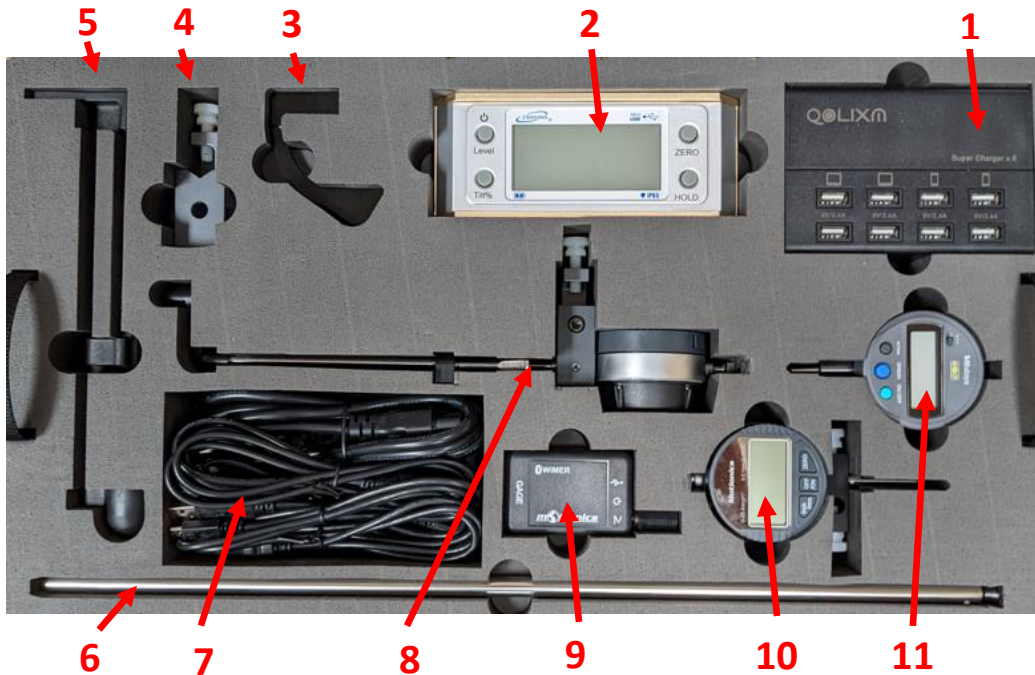
See individual Certificates of Calibration and Traceability.

2.0 Unpacking

The rolling Nanuk case has been designed to minimize any damage that may occur during transport and can also be used to ship the BT1000 Dissolution Validation and Reporting System back to QLA for recalibration. Check the shipping container for any damage during transport. Unpack the individual parts carefully. After unpacking, check the parts for possible damage. Report any damage immediately to your local QLA representative.

3.0 Product Description

3.1 BT1000 Dissolution Validation and Reporting System (Level 1)



- | | |
|-------------------------------------|---------------------------|
| 1. Charging Bank | 7. Cord storage |
| 2. Verticality Meter | 8. Open Head Height Gauge |
| 3. Closed Head Height Gauge Arm | 9. Wimmer Trigger Switch |
| 4. Closed Head Height Gauge Adapter | 10. Wobble Gauge |
| 5. Depth Set Tool | 11. Centering Gauge |
| 6. Centering Gauge Shaft | |

Vibration Meter Add-On (Pictured Below)



3.2 BT1000 Dissolution Validation and Reporting System (Level 2)



- | | |
|-----------------------------------|--------------------------------|
| 1. Thermometer | 5. Convex Tachometer Adapter |
| 2. Tachometer | 6. Concave Tachometer Adapter |
| 3. Supply Kit | 7. Wobble Gauge Vessel Adapter |
| 4. Bluetooth Dongle and USB Drive | 8. Wobble Gauge Shaft |

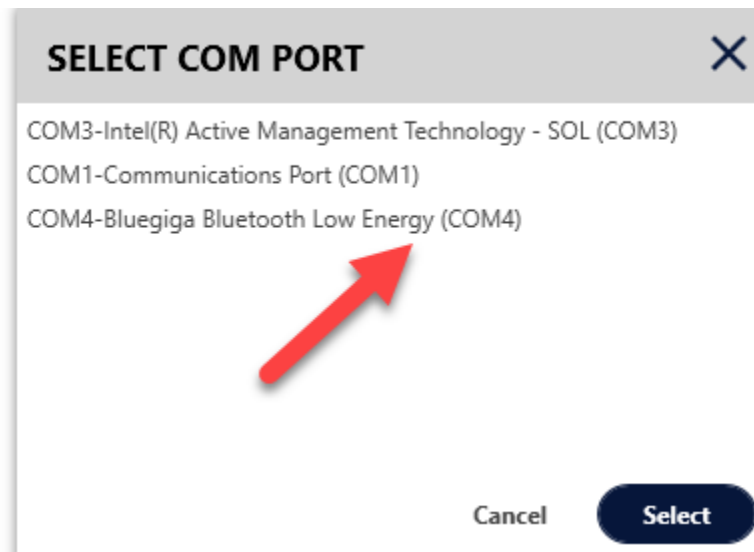
3.3 If a laptop computer was not purchased from QLA, please make sure it meets these specifications.

- Must have at least 2.0 GHz processor and 8 GB of RAM and must have x86 architecture. **ARM processor architecture is NOT compatible!**
- Operation system must be Windows 10 or above.
- Microsoft Office (Excel) must be installed.
- Must have at least 2 USB ports.

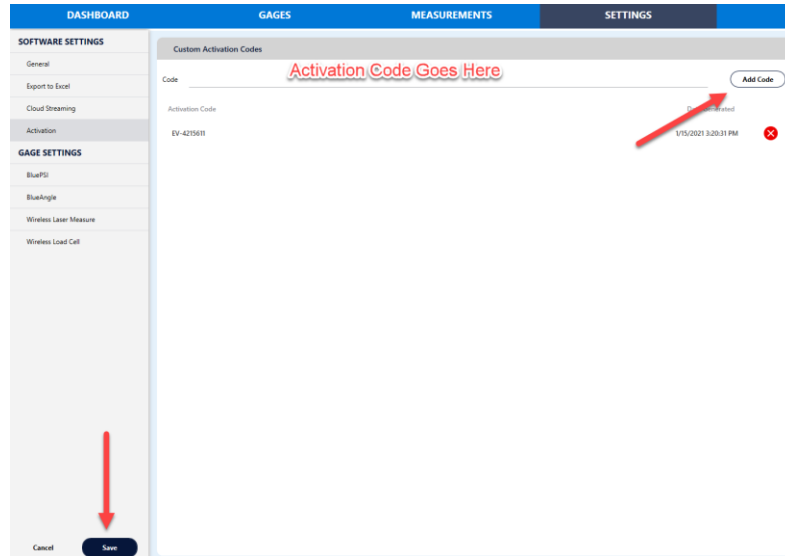
4.0 Software Installation and Configuration

NOTE: The computer must be connected to the internet for this installation procedure. It is also recommended that a new computer be used for this installation.

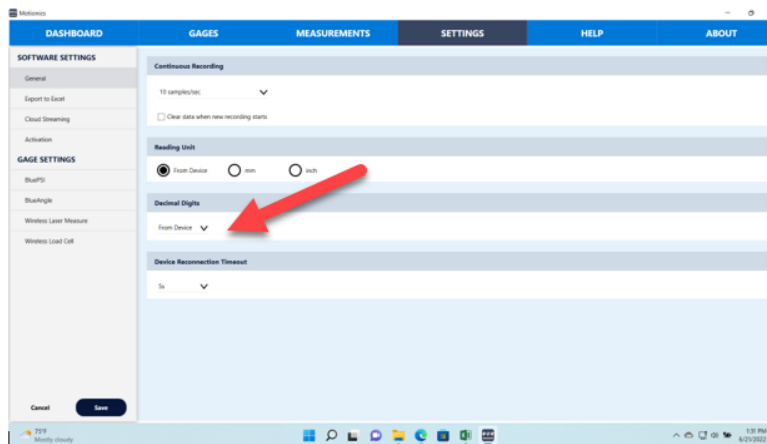
- 4.1 Startup the computer that software will be installed on and ensure Windows is up to date and no updates are running in the background during this procedure.
- 4.2 Search Bluetooth Settings on the computer. Click Add a Device, power on the Wimmer Trigger and wait for it to appear. Click on the device name and wait for it to connect. If the Wimmer Trigger does not appear, reset it by holding down the red trigger button for at least 30 seconds.
- 4.3 Insert the Software USB Drive (QLA Pill) provided with the toolkit into an open USB port on the computer.
- 4.4 Open Multigage Reader Windows folder and install the Motionics.application file.
- 4.5 Click More info and Run Anyway if a security warning is displayed.
- 4.6 Multigage software will open.
- 4.7 Insert USB Dongle into an open USB port on the computer.
- 4.8 Wait for Windows to search and install the driver. If the driver is not automatically installed, you will need to install it manually following the steps below.
 - 4.8.1 Search Device Manager on the computer.
 - 4.8.2 Expand the Ports arrow to display the USB devices.
 - 4.8.3 Right click on the port with the USB Dongle installed.
 - 4.8.4 Select Update Driver then “Browse my computer for drivers”.
 - 4.8.5 Select the folder where the driver is located and install it.
- 4.9 In the Multigage software, click on the Dongles icon (+) and select the BlueGiga Bluetooth Low Energy dongle and click Select. The dongle is now attached. See example below.



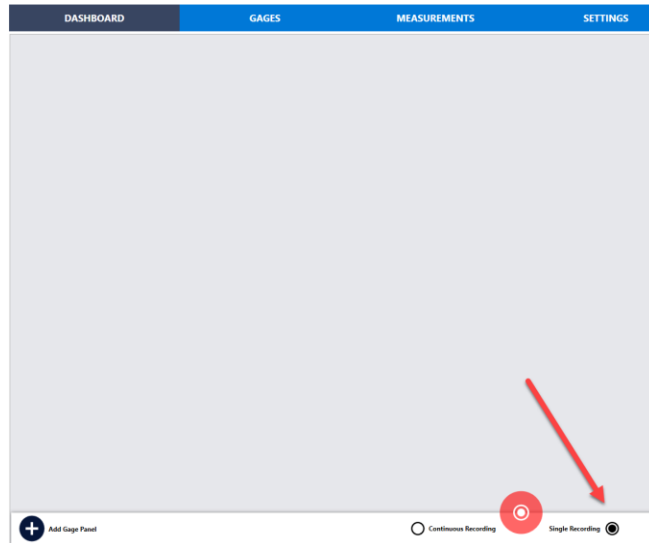
- 4.10 Navigate to the Settings/Activation tab and enter the Multigage activation code provided on the Software USB (QLA Pill) drive. Then Press Add Code and Save. See Example below.



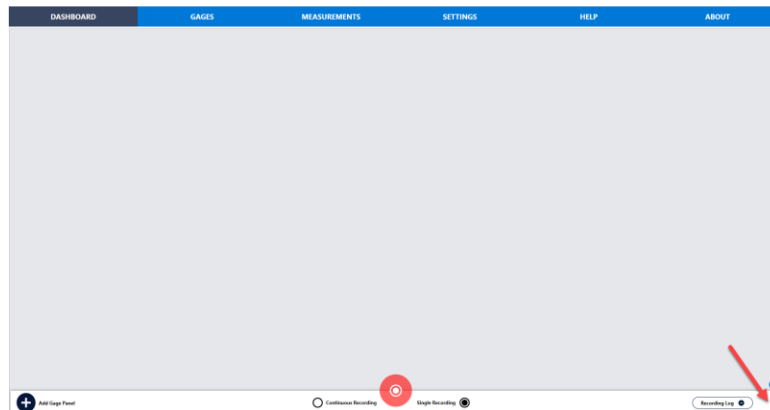
- 4.11 Go to the General screen and set the Decima Digits to From Device.



- 4.12 Navigate to the Dashboard.
 4.13 Click the button labeled Single recording (If not already checked). See example below.

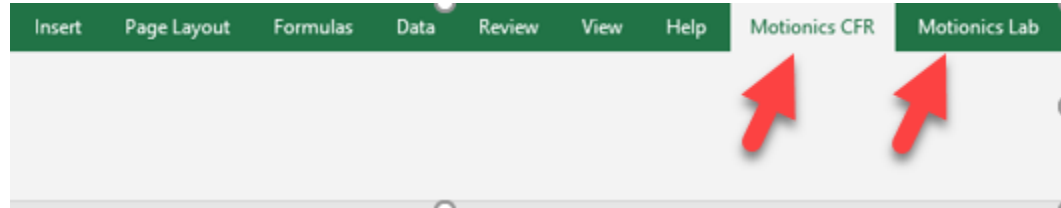


- 4.14 On the lower right-hand corner of that screen, click on the 3 vertical dots. See example below.



- 4.15 Select Open Dashboard and open the Dashboard.mmf file on the Software USB (QLA Pill) drive. This will bring up your preconfigured dashboard.
- 4.16 Navigate back to the Gages tab and turn on all tools to be used (display and Bluetooth switches) and select Scan. Select all tools individually and wait for them to connect. See Section 7.0 Powering on and Charging Tools.
- 4.17 Go back to the Dashboard and you should see data being displayed for all selected gauges.
- 4.18 Open the Lab Publish folder on the Software USB Drive (QLA Pill) and install the LabTestExcelAddInn file.
- 4.19 Open the CFR Publish folder on the Software USB Drive (QLA Pill) and install the CFRExceladdin file.

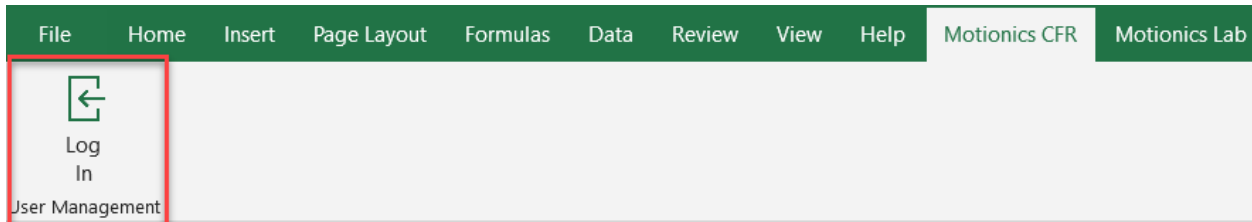
- 4.20 Open Excel and confirm there are now Motionics CFR and a Motionics Lab tab at the top of the screen. See example below.



- 4.21 Click on Motionics CFR tab at the top of the screen.
 4.22 Select the Login button on the ribbon.
 4.23 Enter the CFR activation code provided on the Software USB (QLA Pill) Drive.
 4.24 Log in to Motionics CFR as User Name: Admin Password: 123456.
 4.25 See Section 5.0 for User Management to configure user settings and permissions.

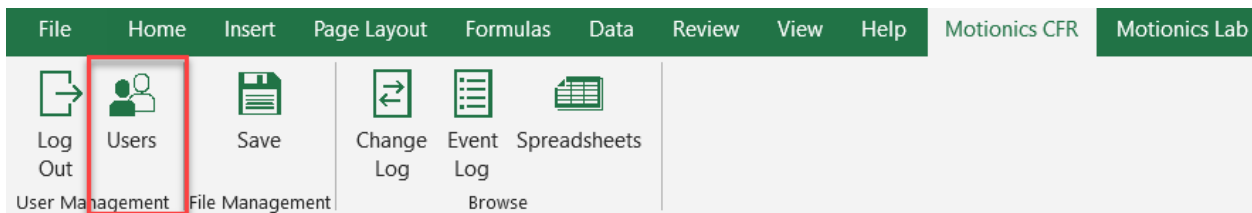
5.0 User Management

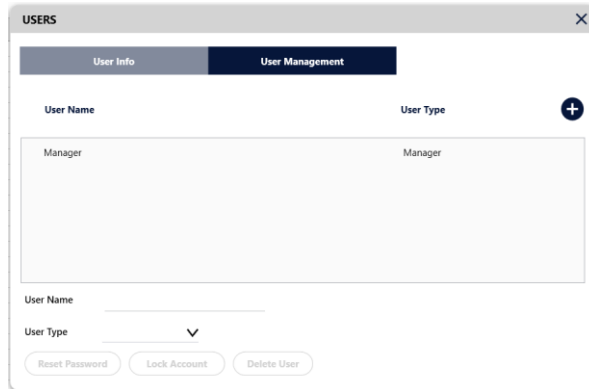
- 5.1 Open a new blank Excel workbook.
 5.2 Click on the Motionics CFR plug-in tab and log in as an Administrator. The username will be Admin and the password will be 123456 for the first login. See below.



USERS

- 5.3 Select Users to bring up the User Management screen. See example below.





The software has three different user types with different permissions – Administrators, Managers and Operators.

Administrators – Can only manage users and cannot create or run tests.

Managers – Have full access to create and run tests, but cannot modify users.

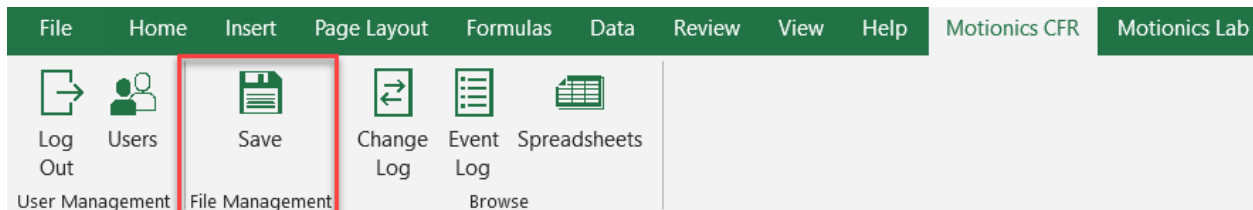
Operators – Can only run tests and cannot manage users, create or modify tests.

- 5.4 To create a new user, select the New (+) button.
- 5.5 Configure the user's name, password and user type.
- 5.6 The Administrator password should be changed and only maintained by the designated administrator.

6.0 CFR Ribbon Functions Overview

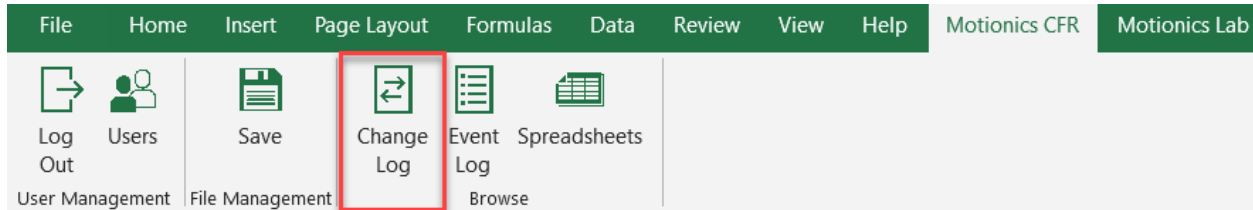
SAVING A TEST

- 6.1 After a test is complete, the Save button allows the user to save the file so it cannot be edited.



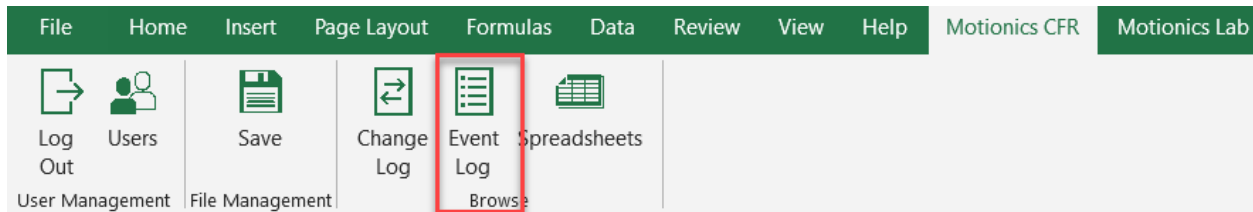
CHANGE LOG

6.2 The Change Log captures and records all actions by a user within a spreadsheet.



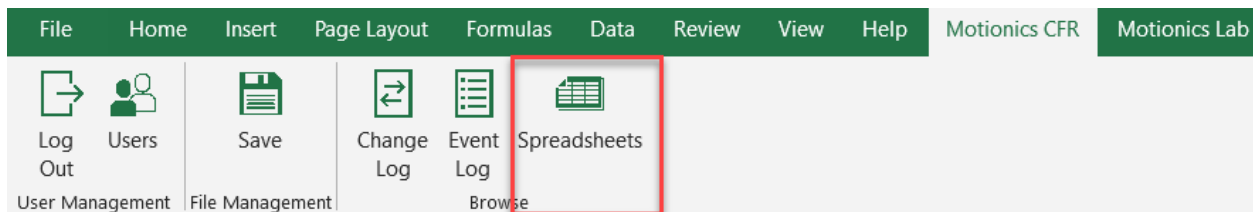
EVENT LOG

6.3 The Event Log captures and records all system changes.



SPREADSHEETS

6.4 The Spreadsheets tab is where all saved spreadsheets can be viewed, edited, opened, imported or exported. Only a Manager has full permissions to perform all of these functions.





7.0 Powering On and Charging Tools

7.1 Powering On

Digital Dial Indicators – The “On/Off” button on the front of these gauges powers on the display but not the Bluetooth capability. To power on the Bluetooth capability, the slide switch on the top of the gauge must be turned on and the LED must be illuminated blue. Digital Dial Indicators can be charged in or out of the tool case, using the multi-port charging station.

Blue LED: Bluetooth is enabled and ready to connect.

Red LED: Tool is charging and not ready to use.

Green LED: Tool is fully charged and ready to use.

No LED: Bluetooth is disabled.

Digital Verticality Meter – The “On/Off” button on the front of the tool powers on the device and is automatically discoverable via Bluetooth. Charging is performed via the charging port on the back of the device.

Digital Thermometer– The “On/Off” Button on the front of the tool powers on the tool and is automatically discoverable via Bluetooth. This device is not rechargeable and requires a 9V battery to operate.

Digital Tachometer– The large button on the front of the tool powers on the device and is automatically discoverable via Bluetooth. This device is not rechargeable and requires two AA batteries to operate.

Wimmer Trigger– The “On/Off” button on the top of the device powers it on and is automatically discoverable via Bluetooth. The red “trigger switch” on the top of the gauge is used to take measurements. Charging is performed via the charging port on the top of the device.

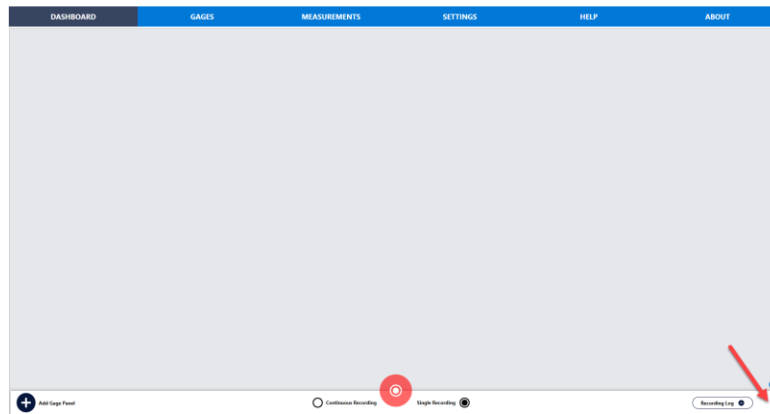
Vibration Meter– The “On/Off” button on the side of the device powers it on and is automatically discoverable via Bluetooth. Charging is performed via the charging port on the side of the device.

8.0 System Startup and Shutdown

This procedure should be used anytime the system is started up or shut down. Proper startup and shutdown sequence is necessary to ensure the BT1000 works properly and accurately.

STARTUP

- 8.1 Turn on the computer.
- 8.2 Insert the Bluetooth Dongle.
- 8.3 Open the Multigage software by clicking on the desktop icon.
- 8.4 Navigate to Gages and select the “+” Dongles icon and select the BlueGiga Bluetooth Low Energy dongle.
- 8.5 Navigate to the Dashboard.
- 8.6 On the lower right-hand corner of that screen, click on the 3 vertical dots. See example below.



- 8.7 Select Open Dashboard and open the Dashboard.mmf file on the Software USB Drive. This will bring up your preconfigured dashboard.
- 8.8 Navigate back to the Gages tab and turn on all gauges (display and Bluetooth switches) and select Scan. Select all gauges individually and wait for them to connect.
- 8.9 Go back to the Dashboard and you should see data being displayed for all gauges.
- 8.10 Open Excel and log in by clicking on the Motionics CFR tab and enter your credentials.

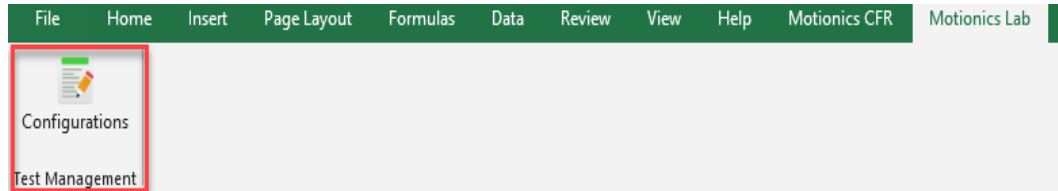
SHUTDOWN

- 8.11 Log out of Motionics CFR and close Excel.
- 8.12 Exit the Multigage software.
- 8.13 Turn off the gauges.
- 8.14 Shut down the computer.

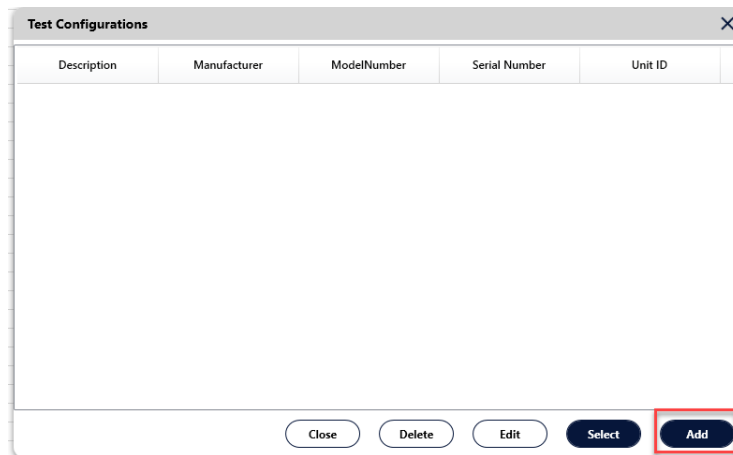
9.0 Configuring a Test

- 9.1 Click on the Motionics Lab plugin tab and then click on the Configurations icon to open the test configuration tool.

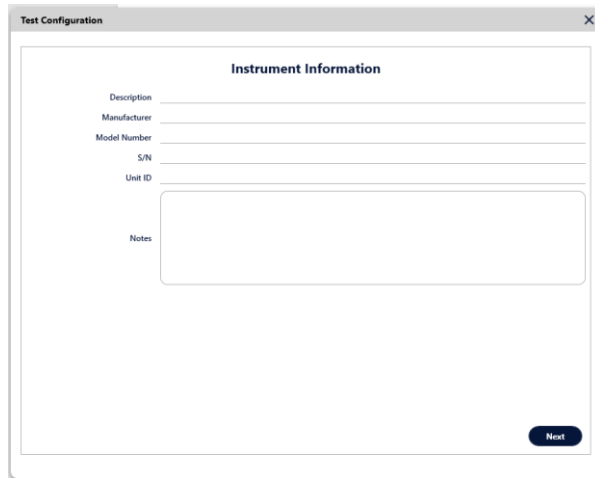
NOTE: You must be logged in as a Manager to configure, edit or delete a test.



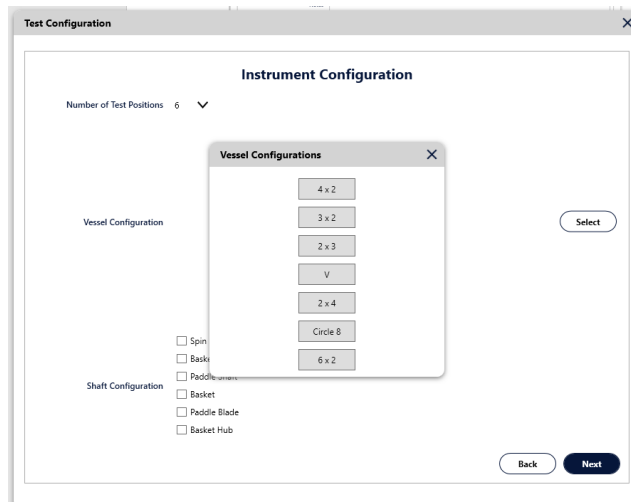
- 9.2 This will open a list of current saved configurations to edit or enable the creation of a new configuration. To add a new configuration, click on the Add button.



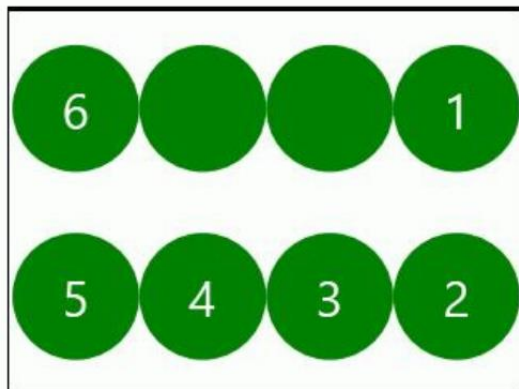
- 9.3 Enter the instrument information and click Next.



9.4 Choose the number and configuration of test positions.



9.5 Add the vessel numbers to the vessel configuration. See example below.



9.6 Select the shaft configurations to be tested and then click Next. See example below.

Shaft Configuration

- Spin Shaft
- Basket Shaft
- Paddle Shaft
- Basket
- Paddle Blade
- Basket Hub

Examples

Spin Shaft



Basket Shaft



Paddle Shaft



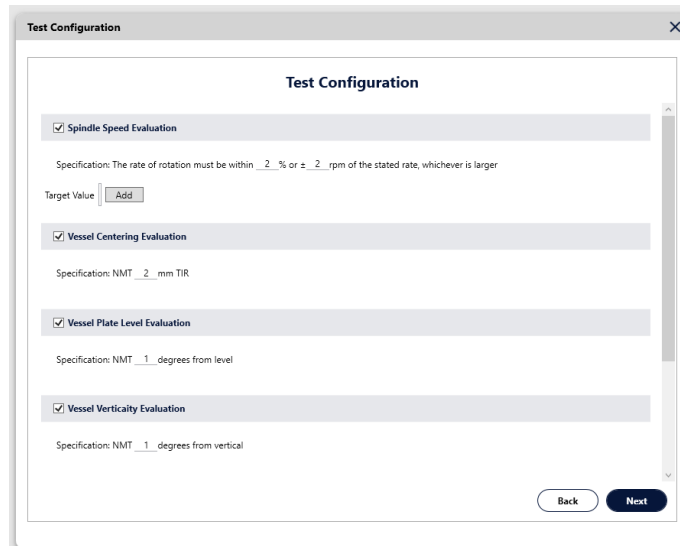
Basket



Paddle Blade/Basket Hub



9.7 Check the boxes of the tests to be run and modify the specifications for the test if needed, then click Next. See example below.



Test Configuration

Spindle Speed Evaluation

Specification: The rate of rotation must be within 2 % or \pm 2 rpm of the stated rate, whichever is larger

Target Value

Vessel Centering Evaluation

Specification: NMT 2 mm TIR

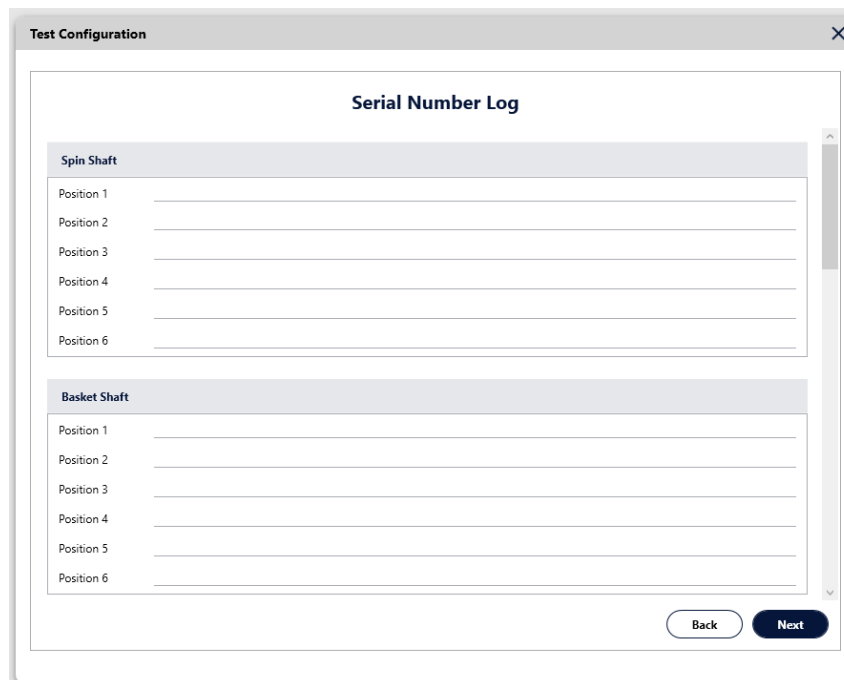
Vessel Plate Level Evaluation

Specification: NMT 1 degrees from level

Vessel Verticality Evaluation

Specification: NMT 1 degrees from vertical

9.8 Enter the S/N of the accessories being used and click Next. See example below.



Test Configuration

Serial Number Log

Spin Shaft

Position 1 _____

Position 2 _____

Position 3 _____

Position 4 _____

Position 5 _____

Position 6 _____

Basket Shaft

Position 1 _____

Position 2 _____

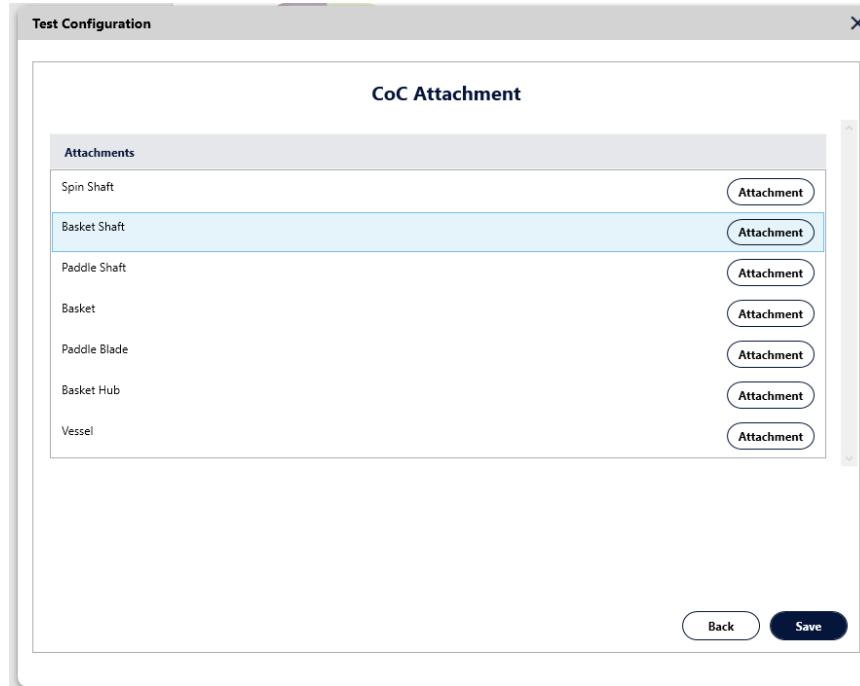
Position 3 _____

Position 4 _____

Position 5 _____

Position 6 _____

9.9 Attach CoC documentation if available and click Save. This configuration will now be available for testing.

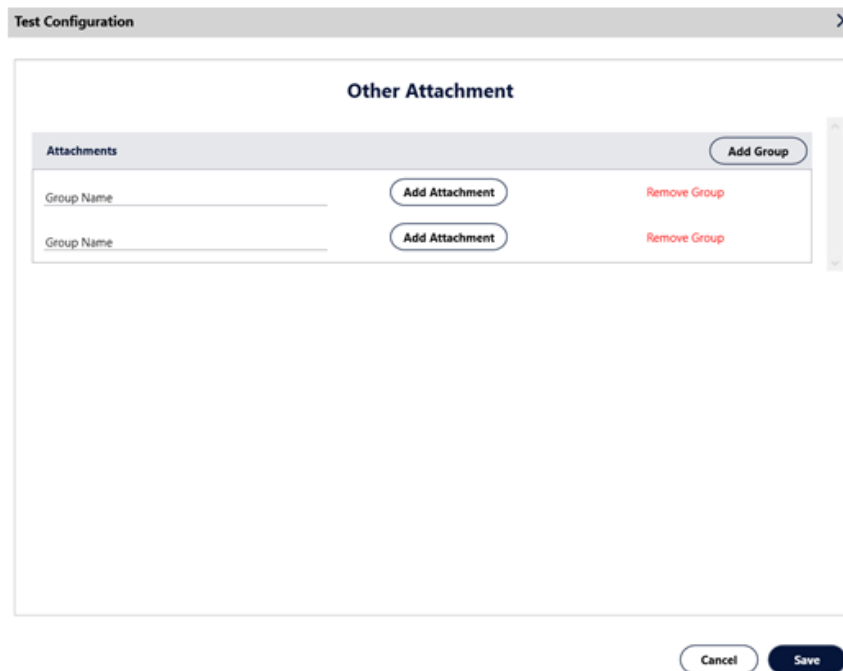


The screenshot shows a 'Test Configuration' dialog box with a 'CoC Attachment' section. It contains a table with the following items:

Attachments	
Spin Shaft	Attachment
Basket Shaft	Attachment
Paddle Shaft	Attachment
Basket	Attachment
Paddle Blade	Attachment
Basket Hub	Attachment
Vessel	Attachment

At the bottom of the dialog are 'Back' and 'Save' buttons.

9.10 Attach any other documents or group of documents.



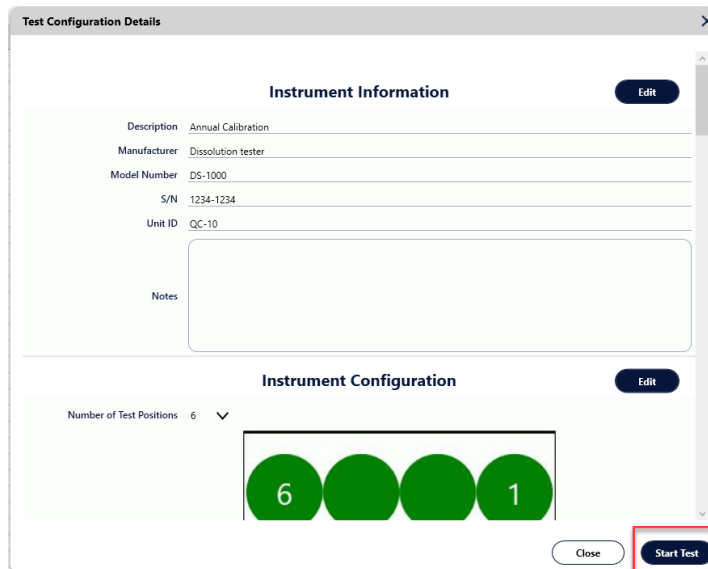
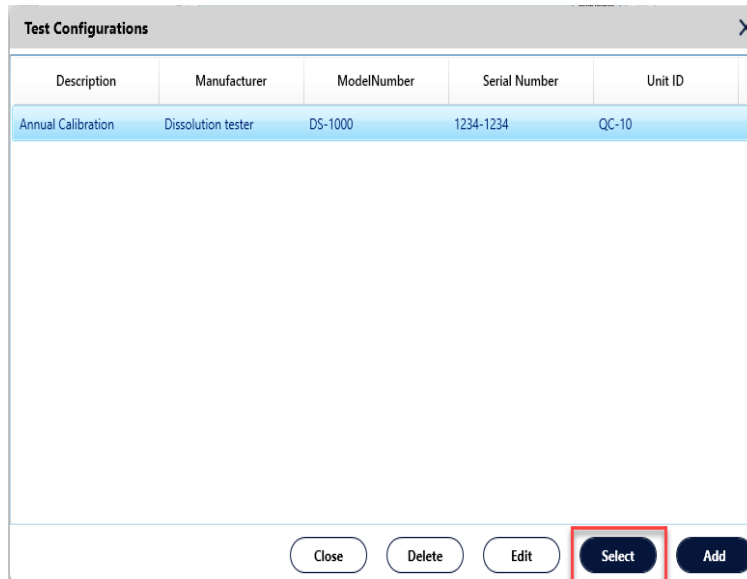
The screenshot shows a 'Test Configuration' dialog box with an 'Other Attachment' section. It contains a table with the following items:

Attachments		Add Group
Group Name	Add Attachment	Remove Group
Group Name	Add Attachment	Remove Group

At the bottom of the dialog are 'Cancel' and 'Save' buttons.

10.0 Starting a test

- 10.1 Log in as either a Manager or Operator and choose the test configuration to be run. If the configuration will need to be edited, a Manager will need to be logged in. If no editing is required, click the Start Test button to start the test.



- 10.2 The software will configure your test based on your selections and will display tabs at the bottom of the screen for each. Tests can be run in any order, but only one test tab can be open at a time.



11.0 Using The Tools

11.1 Test Tab Descriptions

Configuration -- Displays the programmed configuration and instrument information. No values can be edited in this tab.

Calibration Tool Log -- The S/N and calibration date of the instruments being used for the test can be recorded.

Spindle Speed -- Records the spindle speed for each position.

Vessel Centering -- Records the upper and lower centering values for each position.

Vessel Plate Level -- Records the angle of the vessel plate.

Vessel Verticality -- Records the angle of the vessel wall in the X and Y positions.

Spin Shaft Verticality -- Records the angle of the spin shaft in the X and Y positions.

Paddle Shaft Verticality -- Records the angle of the paddle shaft in the X and Y positions.

Basket Shaft Verticality -- Records the angle of the basket shaft in the X and Y positions.

Basket Shaft Wobble -- Records the total runout of the basket shaft.

Paddle Shaft Wobble -- Records the total runout of the paddle shaft.

Basket Wobble -- Records the total runout of the basket rim.

Basket Shaft Height -- Records the distance between the bottom of the basket and the bottom of the vessel.

Paddle Shaft Height -- Records the distance between the bottom of the paddle and the bottom of the vessel.

Temperature -- Records the temperature of the vessel media.

Vibration -- Records the vibration frequency and the amplitude in the Z, X, Y positions .

11.2 Spindle Speed

- 11.2.1 Attach either the concave or convex adapter to the Tachometer depending on the shaft type.
- 11.2.2 Highlight the box for the first position in the spindle speed test.
- 11.2.3 Start the spindles rotating at 25 rpm.
- 11.2.4 Place the Tachometer on the top of the shaft and hold down the large button in the center until the rpm reading appears on the screen. See Figure 1. When the reading stabilizes, click the red button on the Wimmer Trigger. See Figure 2.
- 11.2.5 The reading will be recorded and the box for the next position will be highlighted.
- 11.2.6 Repeat for all other positions in the test.

NOTE: For guidance on Tachometer settings and troubleshooting, please see Appendix A of this document.



Figure 1



Figure 2

11.3 Vessel Centering

- 11.3.1 Attach the dovetail adapter to the dovetail slide on the Vessel Centering Gauge and install in the first position to be tested. The gauge pointer should be touching the vessel at approximately the 900 mL mark for upper position readings. See Figure 3 and 4.
- 11.3.2 Highlight the box for the first position of the vessel centering test. Follow the onscreen prompts and proceed when ready.
- 11.3.3 Wait for the spindle to turn at least 5 revolutions and press the Wimmer Trigger. See Figures 5.
- 11.3.4 The reading will be recorded and the box for the next position will be highlighted.
- 11.3.5 Move the gauge pointer to approximately the 500 mL mark for lower position readings. See Figure 6.
- 11.3.6 Wait for the spindle to turn at least 5 revolutions and press the Wimmer Trigger. See Figures 7.
- 11.3.7 Repeat for all other positions in the test.



Figure 3

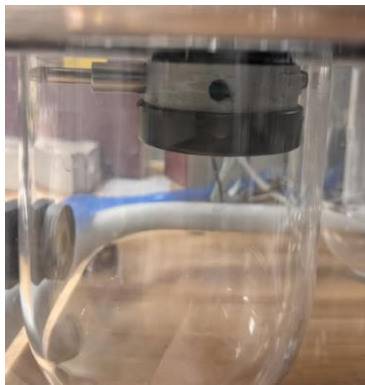


Figure 4



Figure 5



Figure 6

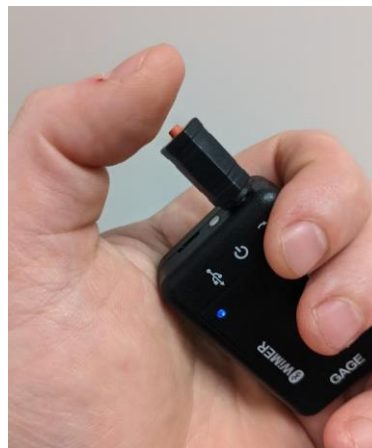


Figure 7

11.4 Vessel Plate Level

- 11.4.1 Place the Verticality Meter on the front of the vessel plate in the X position. See Figure 8.
- 11.4.2 Highlight the box for the first position of the vessel centering test.
- 11.4.3 Wait for the reading to stabilize and press the Wimmer Trigger. See Figure 9.
- 11.4.4 The reading will be recorded and the box for the next position will be highlighted.
- 11.4.5 Place the Verticality Meter on the side of the vessel plate in the Y direction. See Figure 8.
- 11.4.6 Wait for the reading to stabilize and press the Wimmer Trigger. See Figure 9.



Figure 8



Figure 9

11.5 Vessel Verticality

- 11.5.1 Place the Verticality Meter on the inside of the vessel wall in the X position. See Figure 10.
- 11.5.2 Highlight the box for the first position of the vessel centering test.
- 11.5.3 Wait for the reading to stabilize and press the Wimmer Trigger. See Figure 11.
- 11.5.4 The reading will be recorded and the box for the next position will be highlighted.
- 11.5.5 Place the verticality meter on the inside of the vessel wall in the Y direction. See Figure 10.
- 11.5.6 Wait for the reading to stabilize and press the Wimmer trigger. See Figure 11.
- 11.5.7 The reading will be recorded and the box for the next position will be highlighted.
- 11.5.8 Repeat for all other positions to be tested.



Figure 10



Figure 11

11.6 Shaft Verticality

NOTE: This procedure can be used for Spin Shaft, Basket Shaft and Paddle Shaft verticality measurements.

- 11.6.1 Place the Verticality Meter on the shaft in the X position. See Figure 12.
- 11.6.2 Highlight the box for the first position of the vessel centering test.
- 11.6.3 Wait for the reading to stabilize and press the Wimmer Trigger. See Figure 13.
- 11.6.4 The reading will be recorded and the box for the next position will be highlighted.
- 11.6.5 Place the Verticality Meter on the shaft in the Y direction. See Figure 12.
- 11.6.6 Wait for the reading to stabilize and press the Wimmer Trigger. See Figure 13.
- 11.6.7 The reading will be recorded and the box for the next position will be highlighted.
- 11.6.8 Repeat for all other positions to be tested.



Figure 12



Figure 13

11.7 Shaft Wobble

NOTE: This procedure can be used for Spin Shaft, Paddle Shaft, Basket Shaft and Basket wobble measurements.

- 11.7.1 Assemble the Wobble Gauge and holding bracket. See Figure 14.
- 11.7.2 Install in the vessel position to be tested. See Figure 15. Note the proper indicator positioning as per the “Wobble Gauge Measurement Positioning” chart below.
- 11.7.3 Start the rotation of the spindles at 25 rpm.
- 11.7.4 Follow the on-screen prompts.
- 11.7.5 Wait for the reading to stabilize and press the Wimmer Trigger. See Figure 16.
- 11.7.6 The reading will be recorded and the box for the next position will be highlighted.
- 11.7.7 Repeat for all other positions to be tested.



Figure 14



Figure 15



Figure 16

Wobble Gauge Measurement Positioning			
Spin Shaft	Paddle Shaft	Basket Shaft	Basket
Directly above the apparatus mating surface	2 cm above the paddle blade	2 cm above the top of the basket	Bottom rim of the basket

11.8 Shaft height (Open Head)

NOTE: This procedure can be used for basket or paddle shaft height on any open head dissolution tester.

CAUTION! Be sure to use the correct bracket adapter when assembling this gauge.



- 11.8.1 Assemble the Open Head Height Gauge according to Figure 17.
- 11.8.2 Ensure the drive head of the dissolution tester and the shaft to be tested are in the down position.
- 11.8.3 Set the apparatus height using the Depth Set tool.
- 11.8.4 Install the height gauge on the shaft and tighten the thumb screw. There should be at least a few mm of preload on the gauge and the knob should be touching the bottom of the vessel. See Figure 18.
- 11.8.5 Press the Zero button on the gauge face.
- 11.8.6 Highlight the box for the first position to be tested.
- 11.8.7 Raise the hand lever until the knob touches the bottom of the apparatus shaft. See Figure 19.
- 11.8.8 Hold in this position and press the Wimmer Trigger. See Figure 20.
- 11.8.9 The reading will be recorded and the box for the next position will be highlighted.
- 11.8.10 Repeat for all other positions to be tested.



Figure 17

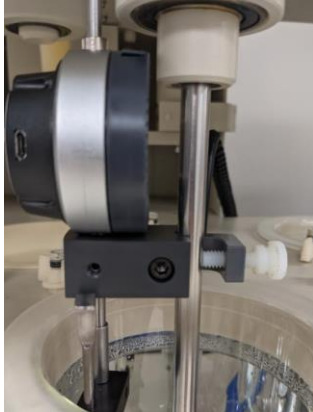


Figure 18



Figure 19



Figure 20

11.9 Shaft height (Closed Head)

NOTE: This procedure can be used for basket or paddle shaft height on most closed head dissolution testers.

CAUTION! Be sure to use the correct bracket adapter when assembling this gauge.



- 11.9.1 Assemble the Closed Head Height Gauge as shown in Figure 21.
- 11.9.2 Ensure the drive head of the dissolution tester is in the up position and the apparatus shaft is all the way in the down position.
- 11.9.3 Set the apparatus height using the Depth Set tool.
- 11.9.4 Install the height gauge on the shaft and tighten the thumb screw. Lift the knob up so it touches the bottom of the apparatus shaft. See Figure 22.
- 11.9.5 Press the ZERO button on the front of the gauge.
- 11.9.6 Release the knob.
- 11.9.7 Lower the drive head to the down position. See Figure 23.
- 11.9.8 Highlight the box for the first position to be tested and follow the onscreen prompts.
- 11.9.9 Press the Wimmer Trigger. See Figure 24.

11.9.10 Repeat for all other positions to be tested.

11.9.11 Repeat for all other positions to be tested.



Figure 21



Figure 22



Figure 23



Figure 24

11.10 Temperature

11.10.1 Fill each vessel to be tested with approximately 900 mL of water.

11.10.2 Set the temperature on the dissolution tester to the temperature to be tested.

11.10.3 Wait for the temperature to stabilize.

11.10.4 Insert the thermometer probe into the first vessel and press the Wimmer Trigger. See Figure 24.

11.10.5 The reading will be recorded and the box for the next position will be highlighted.

11.10.6 Repeat for all other positions to be tested.

11.11 Vibration

11.11.1 Place the vibration meter on the surface to be tested. It is recommended that vibration be tested on the front of the vessel plate in the center. See Figure 26.

11.11.2 Press the Wimmer Trigger.

11.11.3 After a few seconds, the vibration readings will be recorded into the boxes.

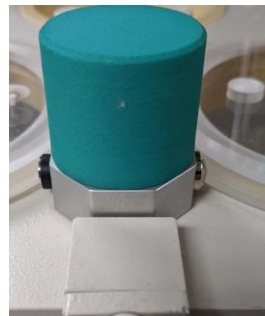
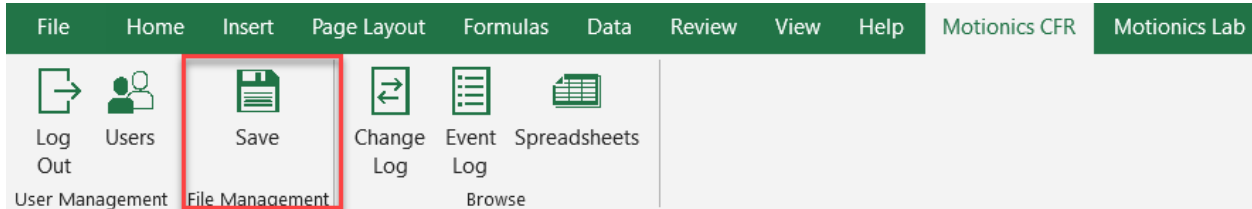


Figure 26

12.0 Saving a Test

12.1 Open the Motionics CFR tab at the top of the screen and select the SAVE icon.



12.2 Enter a file name.

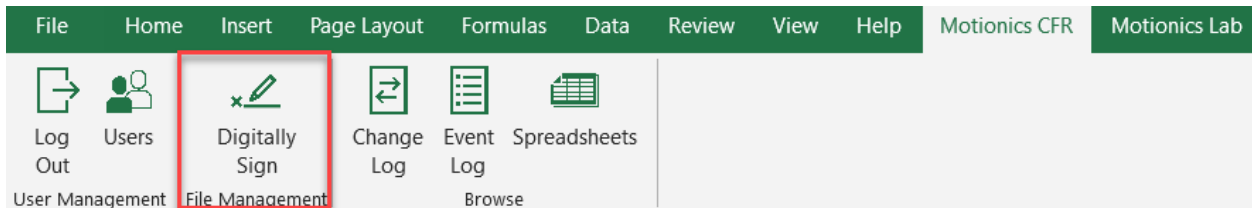
12.3 Enter the password for the user that performed the test.

12.4 The test is now saved.

12.5 The test can be opened and edited until it is digitally signed.

13.0 Digitally Signing a Test

13.1 Select the Digitally Sign icon to sign the report.



13.2 Save the file as a PDF on the computer.

13.3 The PDF file can be viewed by navigating to the file location and opening. No modifications can be made to this file.

14.0 Test Report

The test report includes the programmed configuration, data collected during the test and any changes made during the testing process. If applicable, the test report also contains Certificate of Conformity (CoC) documentation for any accessories and calibration certificates for the calibration tools used.

15.0 Tool Calibration

It is recommended that the BT1000 Dissolution Validation and Reporting System be sent back to QLA for recalibration once per year.



16.0 Maintenance

The BT1000 Dissolution Validation and Reporting System is designed to be a very low maintenance instrument. Tools should be kept in the case when not in use. Charging can be performed with the tools and charging block in or out of the case.

17.0 Technical Support

For technical support, please call 855-QLA-LABS or email us at labservices.support@qlallc.com

18.0 Warranty

The parts contained in this kit are warranted to be free from defects in materials and workmanship under normal installation, use and service for a period of (1) year from the date of purchase as shown on the purchase order receipt. The obligation of QLA under this warranty shall be limited to repair or replacement (at our option) during the warranty period, provided the product is returned to QLA with transportation charges prepaid. This warranty shall be invalid if the product is damaged as a result of defacement, misuse, accident, destruction or alteration of the serial numbers, repair alteration or maintenance by any person or party other than our own service facility or authorized QLA service technician.

APPENDIX A – Tachometer Settings Reset Procedure

The Bluetooth Tachometer comes from the factory with the correct settings in place to work with the BT1000 Dissolution Validation and Reporting System. However, it is possible to change these settings, either on purpose or accidentally. This procedure will guide you through the process of returning the Tachometer back to the intended settings to work with the BT1000 Dissolution Validation and Reporting System.

1. Turn on the tachometer by pressing the large button in the center. The display should illuminate. See Figure A.
2. Press the star-wheel button one time to bring up the SET CONTENTS menu. See Figure B.
3. Press the star-wheel button two times to highlight 3. SET_SYSTEM and then press the right arrow key. See Figure C.
4. Press the star-wheel button until 14 FACTORYDEFAULT is highlighted. Then press the right arrow key. Use the star-wheel key to highlight Yes and then press the right arrow key.
5. Press the left arrow key until back at the main screen shown in Figure A. Note: There will only be one "0" shown.
6. Repeat steps 2 and 3.
7. Press the star-wheel key until 5. CONTACT is highlighted. Then press the right arrow.
8. Press the star-wheel key until 4. Contact (Low) is highlighted and then press the right arrow key.
9. Press the left arrow key twice to return to the main menu. The display should read 0.00.

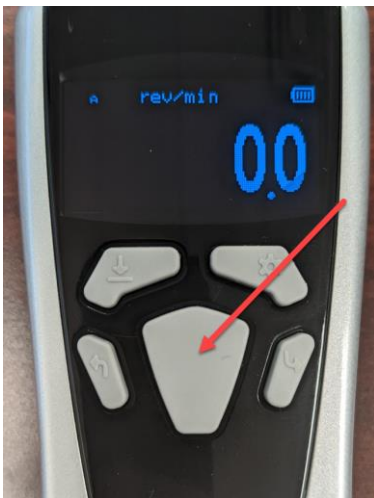


Figure A



Figure B



Figure C

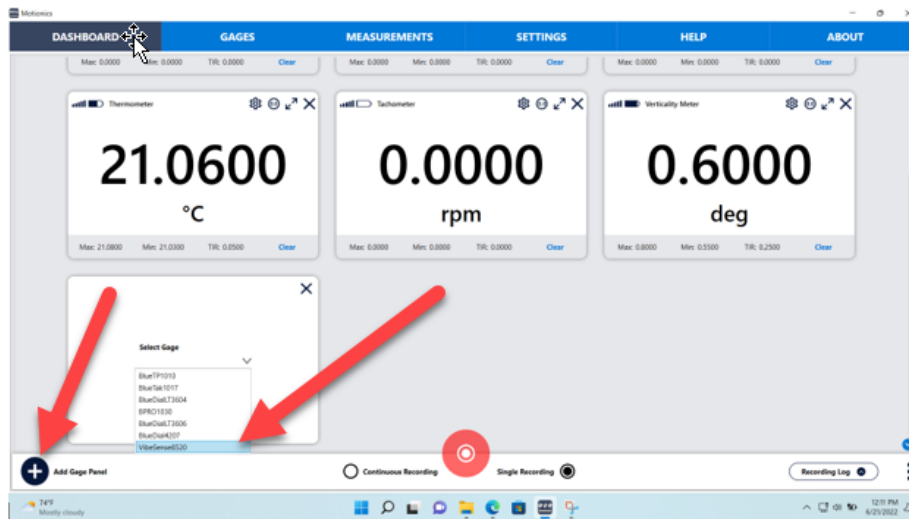
Resetting the Tachometer Auto-Off to 30 min

1. Press the big, center button to power the tool on.
2. Press the “star wheel button” in the upper left-hand corner.
3. Press the “star wheel” button 2 more times until “Set_System” is highlighted.
4. Press the “right arrow button”. “Auto-Off” should be highlighted.
5. Press the “right arrow button” and then press the “star wheel button” until “30 min” is highlighted.
6. Press the “right arrow button” and “Auto-Off” should be highlighted.
7. Press the “left arrow key” twice to return to the main screen.

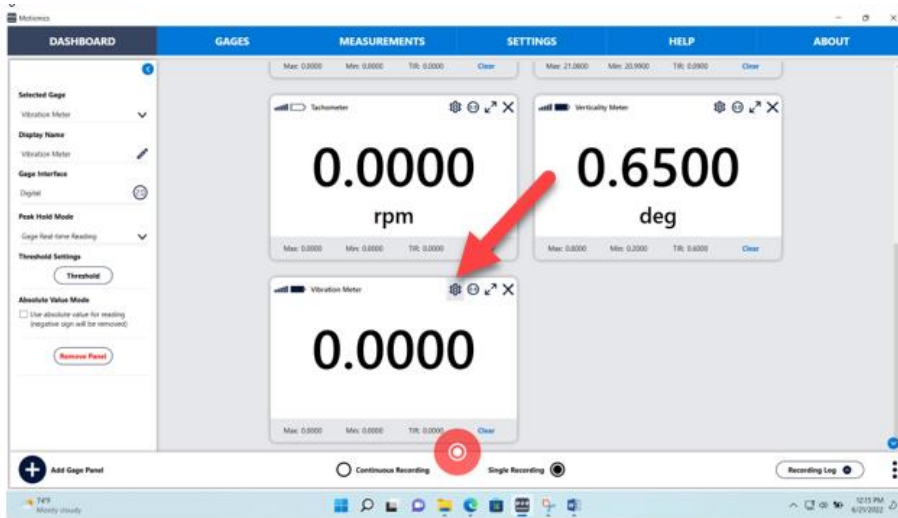
APPENDIX B – Adding a Vibration Meter to the Kit

This procedure will guide the user through adding a vibration meter to an existing 6-tool kit.

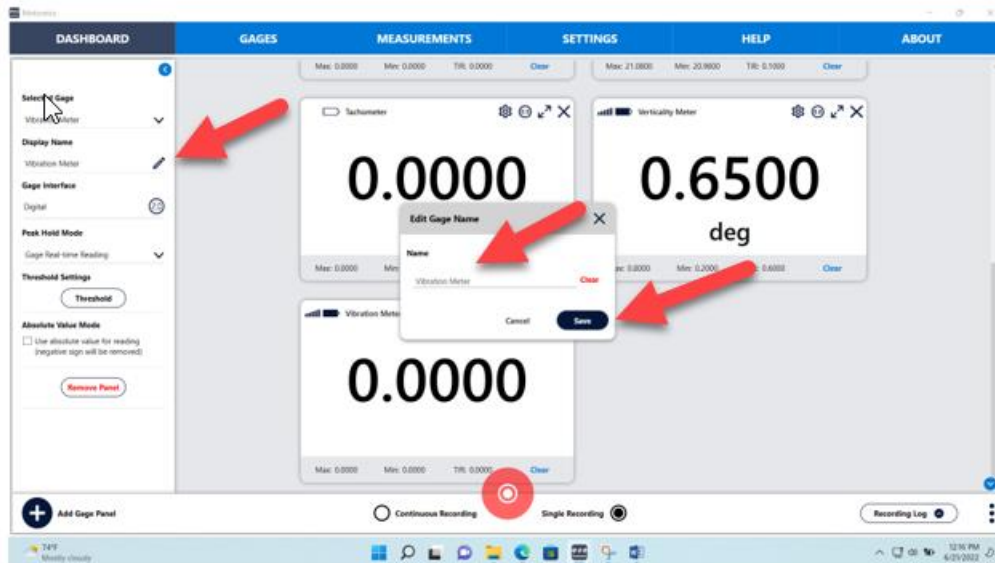
1. Perform the Startup Procedure detailed in steps 8.0 through 8.9 of this manual.
2. Turn on the vibration meter by pressing the button on the side. You should see a blue LED illuminate.
3. Go to the Gages tab and hit Scan. Select the VibeSense and ensure it connects.
4. Click the “Add Gage Panel” + sign at the lower right-hand corner of the Dashboard tab. Then click on the drop-down menu and select VibeSense.



5. Click on the settings star wheel to open the tool settings.



6. Click on the “Pencil” to edit the display name.
7. Change the name of the tool to Vibration Meter. Note: The name must be exact (case sensitive) or the tool will not work. Then click Save.



8. Click on the 3 dots in the lower right-hand corner and select “Save Dashboard As”. This will be your new dashboard, so either overwrite the old dashboard or change the name and use this one going forward.

