VERNIER LABQUEST 2 OPERATING PROCEDURES

Revised October 10, 2017

<u>VERNIER LABQUEST 2 CHARGING</u>

1. Connect the Vernier LabQuest 2 power adapter to a 120 VAC power source.

2. Verify that the LabQuest 2 is turned off. Connect the coaxial power connector to the LabQuest

3. Charge a minimum of 8 hours for a full charge.

<u>LABQUEST 2 PREPARATION</u>

1. Initialize the Vernier LabQuest 2 by pressing the power button.

2. After the LabQuest 2 has booted (approximately 2 minutes), verify that the dates and times are set correctly. If necessary, set date and time by accessing the HOME>SYSTEM>TIME & DATE functions.

NOTE: LabQuest 2 touchscreen selections may be made using a finger or the stylus stored in the rear of the unit.

3. Verify that the connected sensors are recognized and operating by observing the HOME>LABQUEST APP window for normal values.

4. Remove protective covers from the sensors and perform any necessary sensor preparation.

5. Select the SENSORS>SENSOR SETUP menu and select the built-in sensors desired for the mission in addition to the connected sensors. It is recommended to select GPS and TEMPERATURE (internal) for all runs.

6. Click the OK button when done.

7. Select the SENSORS>DATA COLLECTION menu, then select the TIME BASED option from the MODE pull-down menu.

8. Enter "1" in the RATE: SAMPLES/SEC box for a 1 Hz data rate.

9. Enter "7200" in the DURATION: S (seconds) box for a 2 hour max run duration, which should be adequate for any single mission.

10. Click the OK button when done.

11. Observe the GPS values in the LABQUEST APP window and verify that the GPS has acquired signal.

NOTE: The GPS needs a clear view of the sky and may take several minutes to acquire signal.

12. Select the FILE>SAVE menu and enter a file name for the run in the DATA box. It is recommended to give each run its own name to help keep data organized.

13. Click the SAVE button when done.

14. Click on the GREEN ARROW button in the bottom left corner of the LABQUEST APP screen to start recording data.

NOTE: The data may be viewed by clicking the GRAPH or TABLE buttons at the top of the screen.

15. Perform the mission. Data will be acquired until the Laquest is commanded to stop recording or until the specified collection duration is complete.

STOP DATA RECORDING

1. Stop data recording on the LabQuest 2 by pressing the RED stop button in the bottom left corner of the LABQUEST APP screen.

2. Select the FILE>SAVE, select the run's filename, select SAVE, and confirm that you want to OVERWRITE the file. This will save the data to this run's filename.

3. Turn the LabQuest 2 OFF by going selecting HOME>SYSTEM>SHUTDOWN and confirm by pressing OK, or continue to the Data Retrieval procedure if ready to download data.

LABQUEST 2 DATA RETRIEVAL

1. Connect the LabQuest 2 to a computer with Vernier Logger Lite software installed using the USB to Mini-USB cable. Make sure the LabQuest 2 is turned on.

2. Open the Logger Lite software. When prompted to import remote data automatically, answer NO.

3. Select FILE>LABQUEST BROWSER>OPEN to access the LabQuest 2 data files.

4. Select the desired data file. Select OPEN.

5. When prompted to import remote data automatically, answer NO.

6. If SENSOR CONFIRMATION window appears, select CONTINUE WITHOUT DATA COLLECTION.

7. Right-click on the TIME column in the data table. Select the COLUMN OPTIONS>TIME menu option.

8. In the MANUAL COLUMN OPTIONS box select TIME OF DAY from the pull-down menu to get one-second resolution time tagging. Select DONE.

9. Select the FILE>SAVE AS menu option. Name the edited file and click SAVE.

10. Select the FILE>EXPORT AS>CSV menu option to convert the file to an Excel compatible file for further examination. Select a destination for the CSV file, enter the filename, and select SAVE to store the file.

11. Use Excel to organize and graph data as desired.

USING LOGGER LITE SOFTWARE TO GENERATE A GRAPH

If it is desirable to get a quick-look at the data while having the Logger Lite software open a graph may be quickly generated without having to create a chart in Excel.

1. Open the Logger Lite software.

2. If the data isn't already displayed after completing the download and save process, open the desired .gmbl data file in Logger Lite.

3. If the graph window isn't already displayed, go to the top menu bar, select INSERT>GRAPH.

4. Drag the corner(s) of the graph window to enlarge as desired.

5. Place the cursor in the graph window and right-click.

6. Select GRAPH OPTIONS>AXES OPTIONS.

7. In the X-Axis: Column: pull down window, select Time of Day for a time domain graph.

8. In the Y-Axis: Columns: pull-down window, check boxes to select desired sensor data.

9. Click on the DONE button to populate the graph.

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