Operation Manual

Vibrate

Occupational
Vibration Monitor

CRIFFER

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I. Introduction

Vibration dosimeter for WBV (whole body vibration), HAV (hand-arm vibration) and assessment of glove effectiveness with V-glove sensor (sensor purchased separately). Manufactured in Brazil, Vibrate meets national and international occupational hygiene standards. CrifferSuite software provides the necessary results for preparation of assessments, studies and judicial expertise through the report such as AREN, Crest Factor (FC) and resulting vibration dose value.

This product was developed to be simple and easy to operate, however, its application involves risks, and to avoid them, it is important to READ THIS MANUAL THOROUGHLY. Our expert technical support can assist you in case of doubts.

2. Specifications

2.1. General

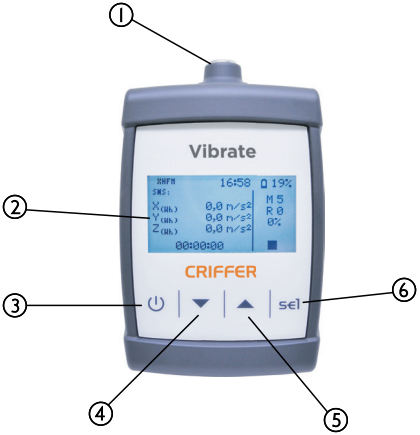
Display: Backlit LCD Alphanumeric
Simultaneous vibration measurements on the 3 axes: X, Y and Z
Whole body vibration measurements with triaxial seat accelerometer
Hand-arm vibration measurements with triaxial accelerometer and adapters
Resolution: 0,01 m/s^2
WBV Frequency weighting: Wk and Wd
HAV Frequency weighting: Wh
Measurement parameters: RMS, VDV, Aeq, Am, Amr, Amep, Are, Aren, A (8), Arep and Crest Factor
Overload indication
Calibration through sensitivity or with external calibrator
High resistance to EMI/RFI
Displays battery percentage (0 to 100%)

Power Supply: 3,7V 1800mAh rechargeable li-ion battery
Storage: up to 60 measurements (20k records)
Data logging intervals: 1 to 60s
Operation temperature: 0 to 70 °C
Operation Humidity: 0 to 95% RH
Power Supply: 3,7V 1800mAh rechargeable li-ion battery
Battery Life: 9h
Charger: bi-volt with USB connection and USB Interface
Dimensions: 90 x 62 x 24 mm
Weight: 125g
HAV accelerometer weight: 25g
WBV accelerometer weight: 180g

2.2 Includes:

HAV accelerometer
HAV accelerometer accessories (T, bar and block adapters)
WBV accelerometer
Carrying case and USB cable
Allen wrench
Fixing screw

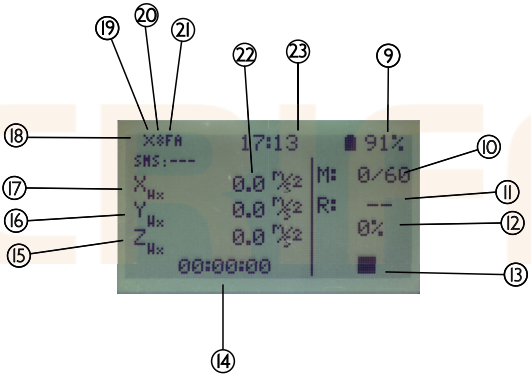
3. Description



Front and back sides

1. Accelerometer input
2. Display
3. On/off
4. Increment button
5. Decrement button
6. Selection/confirm button
7. USB input
8. Wearing clip

4. Display description



9. Battery Percentage
10. Number of assessments
11. Number of logs
12. Memory Usage percentage
13. Record/Pause/Stop Indicator
14. Assessment Duration
15. Z axis weighting
16. Y axis weighting
17. X axis weighting
18. Sensor disconnected
19. Type of sensor
20. Time weighting
21. Registry mode
22. Instantaneous acceleration value
23. Time

5. Safety Information

The vibration monitor, Vibrate, has a Li-Ion (Lithium) battery. It is a non-toxic battery, with a large charge capacity and besides being light, it does not cause memory effect, so Vibrate does not require complete charge cycles.

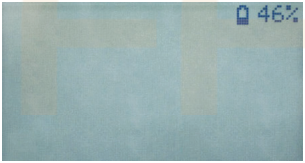
Note: The charging time for the full battery charge is 6 hours.

The instrument must never be exposed to high temperatures, which may cause definitive damage or even the explosion.

6. Operating

When using Vibrate, follow these procedures:

6.1. Before starting the Vibrate operation, the instrument must be loaded with the bi-volt charger. Plug the charger into a wall outlet (110/220V) with the mini USB cable (7).

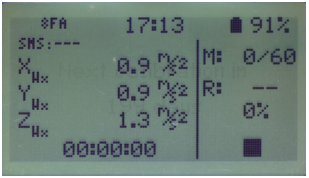


Note: DO NOT charge Vibrate at hazardous areas.

When the instrument is activated, with the button (3), the following screen will be displayed:

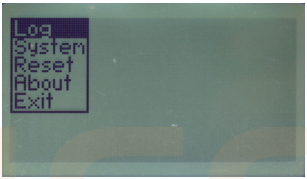
Device's name: Vibrate
Manufacturer: Criffer
Firmware version: V.5.14
Date: month/day/year

After turning the instrument on, the following screen will be displayed:



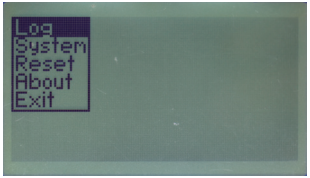
6.3 Menu

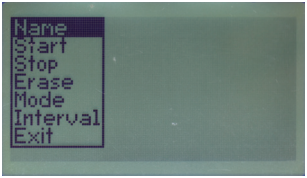
Press the selection button (6) for 3 seconds and the screen will display the main menu with the following options: Assessment, system, reset, about and exit.



6.4. Log

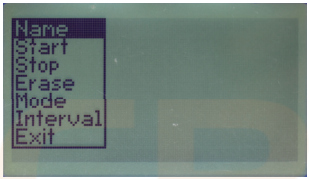
The option log allows naming the assessment, starting, stopping, deleting, selecting mode, setting logging intervals and exit.

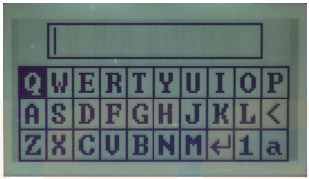


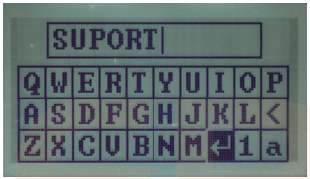


6.5 Name

This function allows you to name the log before the assessment start. Name the log by using buttons 4 and 5 to navigate between the letters of the same line, use button 3 to switch between lines, to enter a letter press button 6. To finish it, select the blank space in the last line and confirm by pressing button 6.

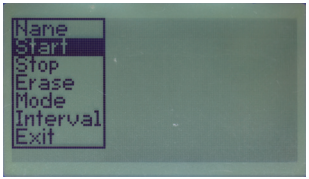


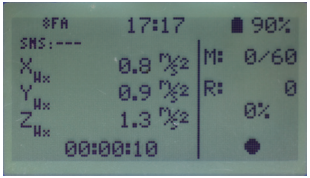




6.6 Start

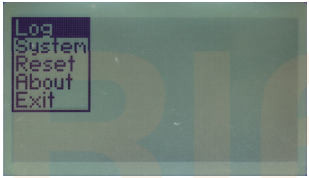
Press the option "start" to start data logging. A circle will be displayed indicating the device is data logging.

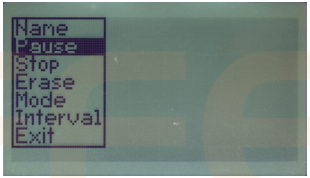




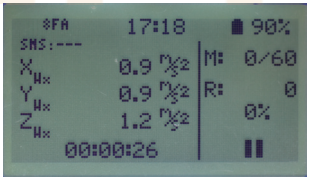
6.7 Pause

The option "Pause" allows interrupting a measurement, if necessary. Press button 6 for 3 seconds, select log by pressing button 6 again and then select pause by pressing button 6 to confirm.



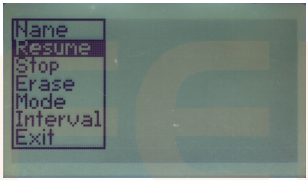


When selecting pause, two dashes will be displayed on the screen.

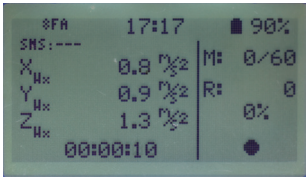


6.8. Resume

To resume the measurement, press button 6 for three seconds. Select 'Log' by pressing button 6 again. Select 'resume' by pressing button 4 and 5. Press button 6 again to confirm it. The measurement will be resumed.

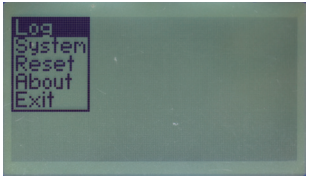


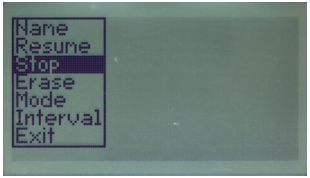
A circle will display on screen indicating the device is data logging.



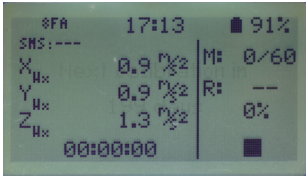
6.9. Stop

To end the measurement, press button 6 for three seconds. Select 'log' by pressing button 6 again. Select 'stop' and press button 6 to confirm.



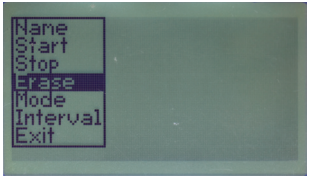


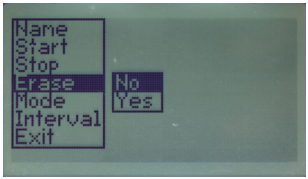
When pressing 'stop', the screen displays a square to indicate the measurement conclusion.

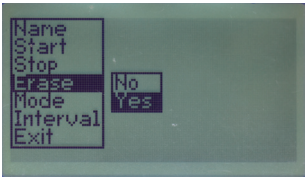


6.10. Erase

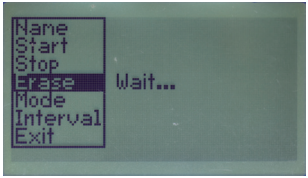
This function deletes all the stored data.





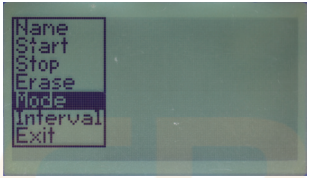


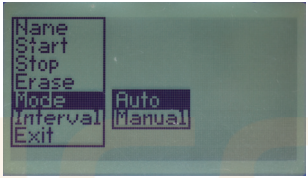
NOTE: Once you click on Erase, all data will be lost and cannot be recovered.

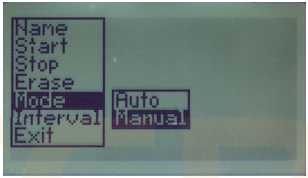


6.11. Mode

This option allows selecting data registration mode between auto and manual. To alternate between modes use buttons 4 and 5 and press button 6 to confirm it. The instrument will display A for Auto and M to manual (see item 21 on display description).

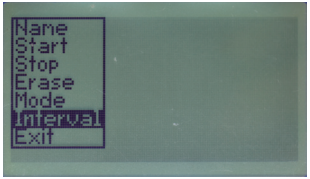


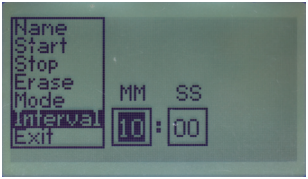


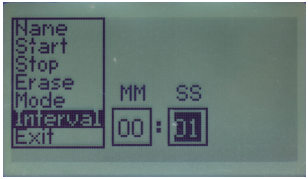


6.12. Intervals

It allows configuring data logging interval on minutes (from 0 to 20min) or seconds (from 0 to 59s), use buttons 4 and 5 to change the values, confirm it by pressing button 6.

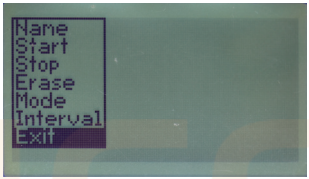






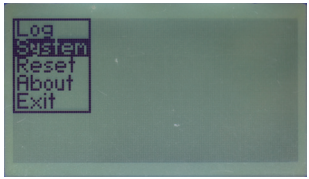
6.13. Exit

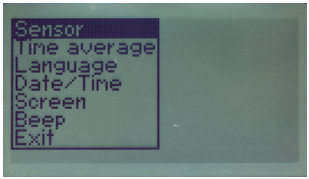
Return to main screen by pressing "Exit".



6.14. System

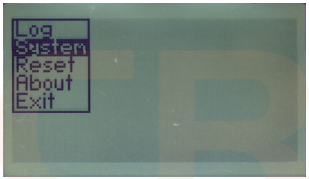
This function allows setting the sensor, time weighting, language, date / time, screen and beep.

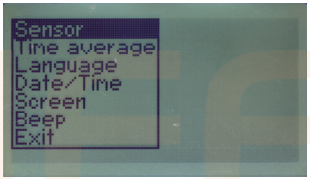


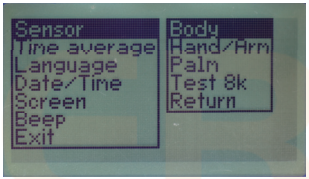


6.15. Sensor

Use this function to select the plugged sensor which can be HAV, WBV or Palm (V-Glove). You can also select the 8k Test for gauging with external calibrator (*CR-I).

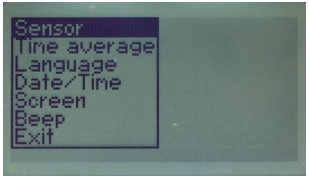


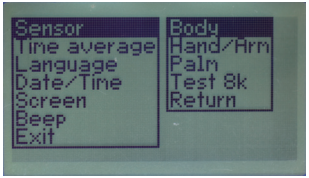




*CR-I is supplied separately.

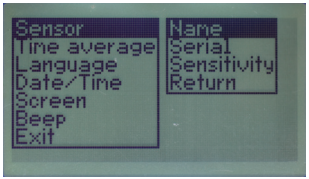
6.16. Whole Body

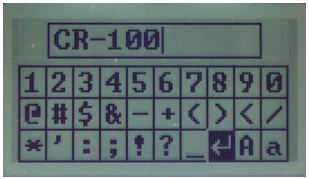




6.17. Name

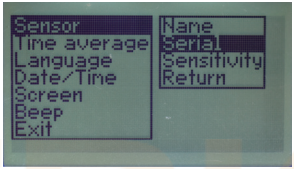
It allows creating an identification name for the sensor, which will be displayed in the assessment report. To name the sensor, use buttons 4 and 5 to navigate between the letters of the same line, to change the line use button 3, to select the letter, press button 6. To finish it, select the empty space by pressing button 6 again.

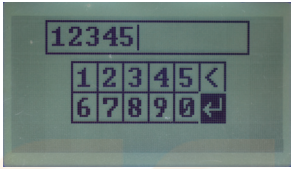




6.18. Serial

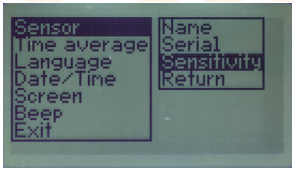
This function allows you to enter the sensor's serial number information. You can find the serial number on the identification tag at the bottom of the whole-body accelerometer. Use buttons 4 and 5 to navigate between numbers of the same line and change the line by using button 3, to select the number use button 6.

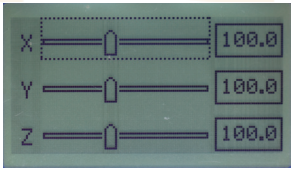




6.19. Sensitivity

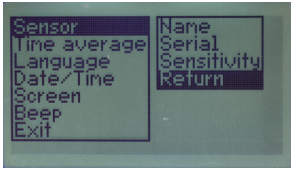
It allows to inform the sensitivity present in the calibration certificate of HAV (00,0) and WBV (000,0) axes. Adjust sensitivity by using buttons 4 and 5 to increase or decrease the displayed value. To advance to the next parameter, use button 6. Repeat the procedure for all axes.



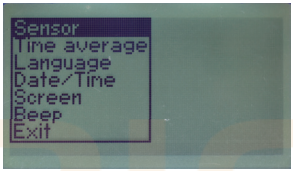


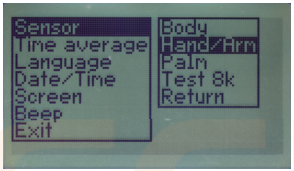
6.20. Return

Return to the main menu.



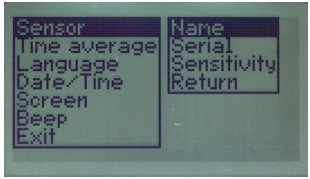
6.21. Hand/Arm

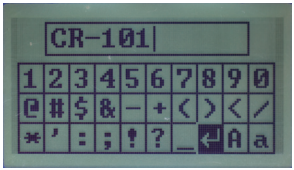




6.22. Name

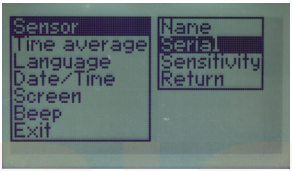
It allows creating an identification name for the sensor, which will be displayed in the assessment report. To name the sensor, use buttons 4 and 5 to navigate between the letters of the same line, to change the line use button 3, to select the letter use button 6. To finish, select the empty space by pressing button 6 again.

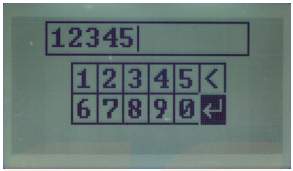




6.23. Serial

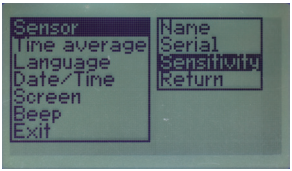
This function allows you to enter the sensor's serial number information. You can find the serial number in the document that comes with the sensor. Use buttons 4 and 5 to navigate between the numbers on the same line and change the line by using button 3, to select the number use button 6.

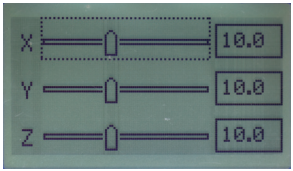




6.24. Sensitivity

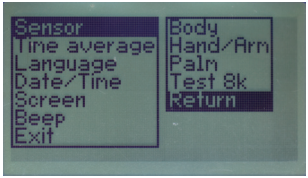
It allows informing the sensitivity present in the calibration certificate of the HAV accelerometer. Adjust sensitivity by using buttons 4 and 5 to increase or decrease the displayed value. To advance to the next parameter use button 6. Repeat the procedure for all axes.





6.25. Return

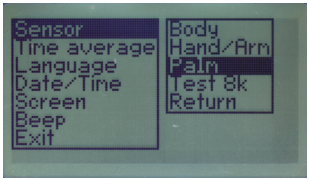
Return to the main menu.

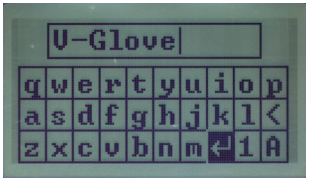


6.26. Palm

6.27. Name

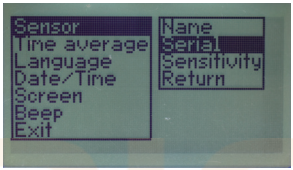
It allows creating an identification name for the sensor, which will be displayed in the assessment report. To name the sensor, use buttons 4 and 5 to navigate between the letters of the same line, to change the line use button 3, to select the letter use button 6. To save it, select the empty space by pressing button 6 again.

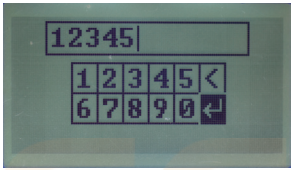




6.28. Serial

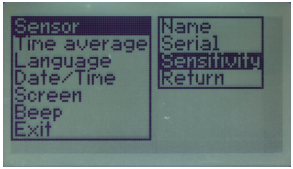
This function allows you to enter the sensor's serial number information. Use buttons 4 and 5 to navigate between the numbers on the same line and change the line by using button 3, to enter a number, press button 6. To save it, select the 'enter' symbol.

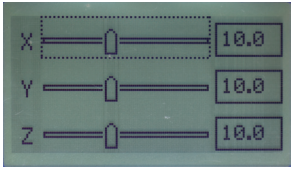




6.29. Sensitivity

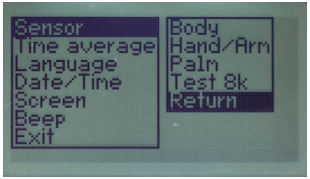
It allows setting the sensitivity value informed in the calibration certificate of the HAV accelerometer. Adjust sensitivity by using buttons 4 and 5 to increase or decrease the displayed value. To advance to the next parameter, press button 6. Repeat the procedure for all axes.





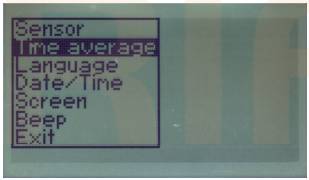
6.30. Return

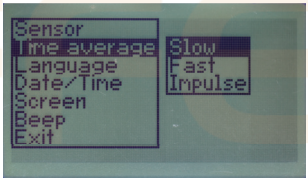
Return to the main menu.

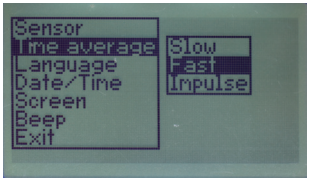


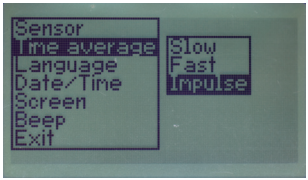
6.31. Time Weighting

This function allows setting Time Weighting between Fast and Slow. Use buttons 4 and 5 to select an option and press button 6 to confirm it.



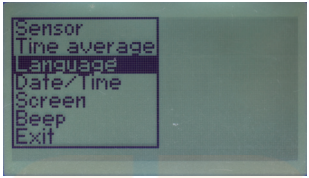


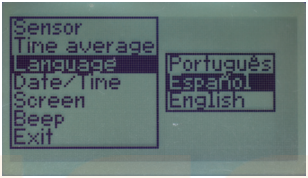


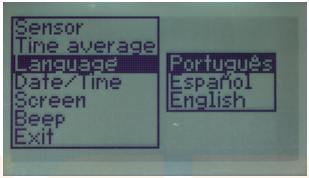


6.32. Language

This function allows setting the language between Portuguese, Spanish or English. Use buttons 4 and 5 to select an option and press button 6 to confirm it.

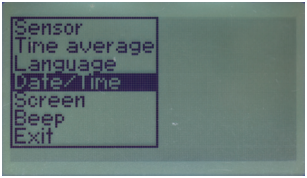


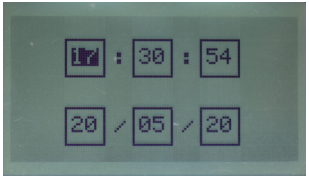




6.33. Date and time

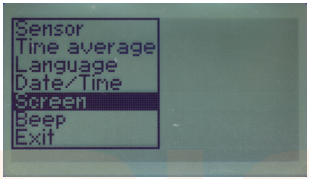
This function allows to adjust date and time of the Vibrate. Use buttons 4 and 5 to change the values, press button 6 to confirm it. Repeat the procedure for all parameters. The screen will return to the previous menu by finishing the adjustment.

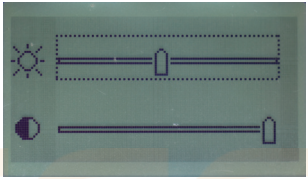




6.34. Screen

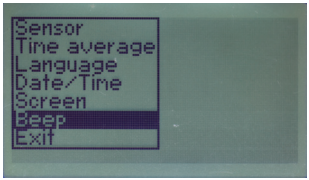
This function allows adjusting the brightness and contrast of the Vibrate's display. To change the brightness of the backlight, press buttons 4 and 5, confirm it by pressing button 6. Do the same procedure to adjust the contrast.

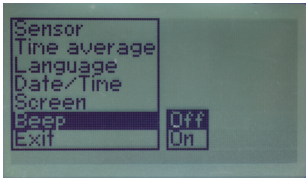


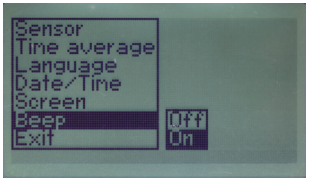


6.35. Beep

Activate or deactivate beep by using buttons 4 and 5 to navigate in the menu and confirm it by pressing the button 6. Use buttons 4 and 5 to switch between the options on/off, use button 6 to confirm it.

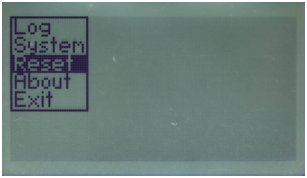






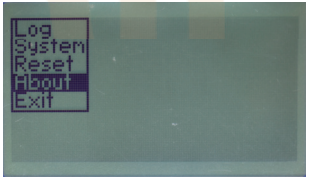
6.36. Reset

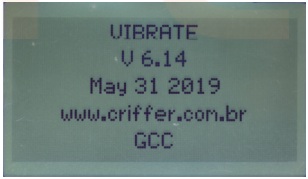
Reset all peak values logged during the measurement.



6.37. About

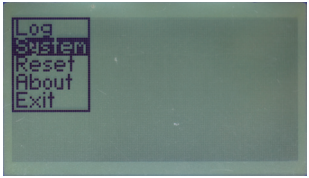
Select about to see the following device's information: device's name, firmware's version and date and Criffer's website.

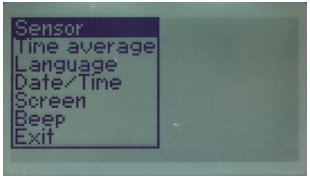


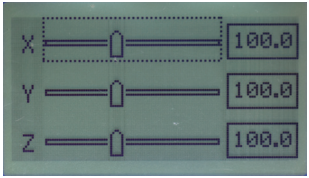


6.39. Before starting an assessment

Turn the instrument on by pressing button 3. Before starting use, it is important to check and adjust the sensitivity value of the sensor used. To access sensitivity settings, press button 6 for 3 seconds, select the option System with button 6, and then select the option Sensor by using button 6. Change the sensor type by using buttons 4 and 5 to alternate between the options and confirm it by pressing button 6. Select the option Sensitivity by using buttons 4 and 5 and confirm it by pressing button 6. Press buttons 4 and 5 to increase or decrease the sensitivity value. To advance to the next parameter, press button 6. Repeat the procedure for all axes.

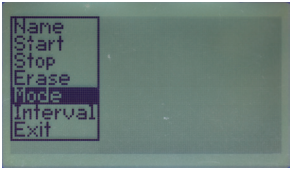


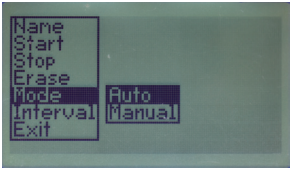


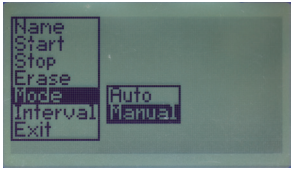


6.40. Starting datalog

Vibrate has two data logging modes: Auto and Manual.



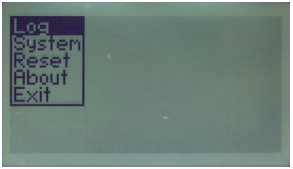


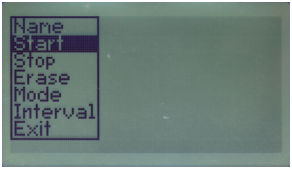


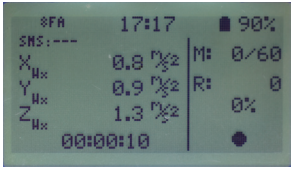
6.41. Auto

After setting sensor sensitivity, press button 6 for 3 seconds, select Log by pressing button 6 again. If you want to name the measurement before starting, just select Name and follow the steps in item 6.27. of this manual. Select Auto by following the steps of item 6.11.

To start data logging, select Start by pressing button 6. The display (2) will show a circle (13) confirming that the measurement has started. The records will be stored according to the configured interval time.

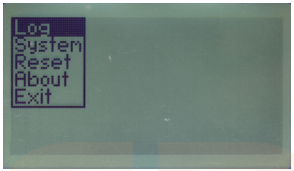


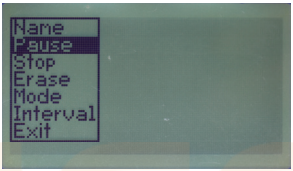


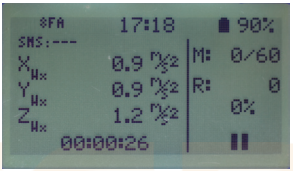


6.42. Pause data logging

To pause the assessment, press button 6 for 3 seconds, select "Log" by pressing button 6 and finally select "Pause" by pressing button 6 again. When selecting pause, two dashes display on the screen.

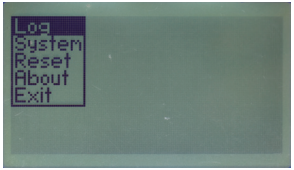


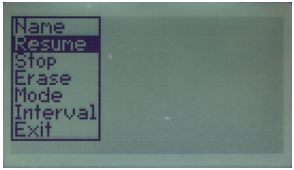


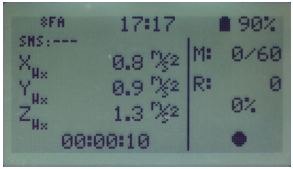


6.43. Resume data logging

To resume the measurement, press button 6 for three seconds. Select 'Log' by pressing button 6 again. Select 'resume' by pressing button 4 and 5. Press button 6 again to confirm it. The measurement will be resumed. A circle will display on screen to inform the instrument is data logging again.

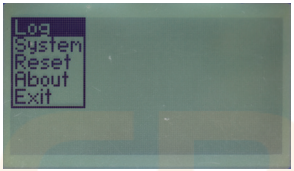


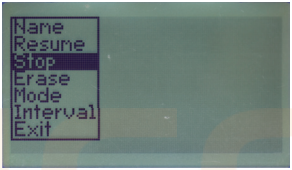


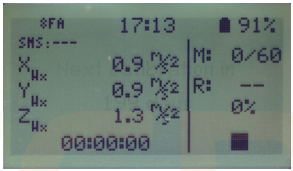


6.44. Finishing datalog

To finish datalog, press button 6 for three seconds. Select 'Log' by pressing button 6 again. Select 'Stop' by pressing button 4 and 5. Press button 6 again to confirm it. The measurement will be finished. A square will display on screen indicating the assessment was finished.







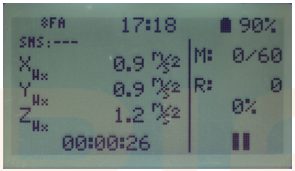
6.45. Manual

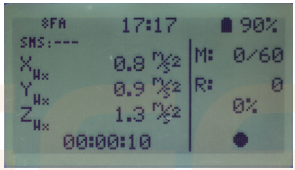
After setting sensor sensitivity, press button 6 for 3 seconds, select Log by pressing button 6. If you want to name the measurement before starting, select Name and follow the steps in item 6.27. of this manual. Select "Manual" by following the steps of item 6.11.

Select Start by pressing button 6. The main screen will be displayed, press button 6 again to start data logging. The screen will display a circle (13) to confirm the measurement has started. NOTE: Every datalog must be done manually by pressing 'Pause'. See item 6.47.

6.46. Datalogging

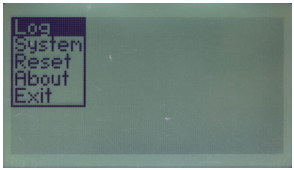
To register a log, press button 6. The measurement will pause. Two dashes will be displayed on the screen to inform the assessment was paused. The 'number of logs' indicator (II) will display a log. To resume the assessment, press button 6 again and a circle will be displayed on the screen to inform the instrument is currently measuring. Follow the same steps to save more measurements.

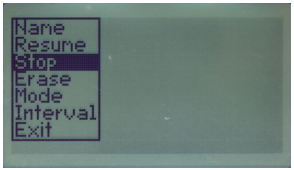


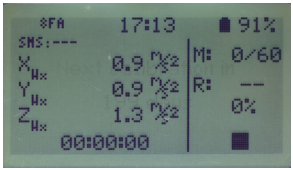


6.48. Finishing an assessment

Press button 6 for 3 seconds, select Log by pressing button 6 again. Use button 4 and 5 to navigate between the options and press button 6 again to select 'Stop'. A square (I3) will be displayed on the screen to indicate the assessment was finished.

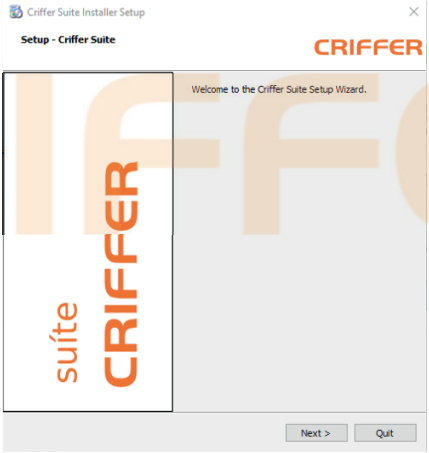






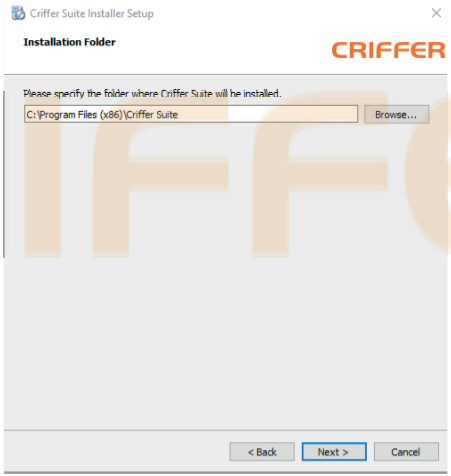
7. Installing CrifferSuite

7.1 To start the Criffer Suite installation, click on 'next'.



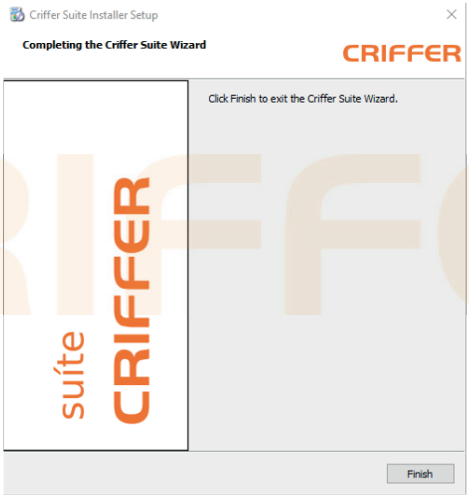
7.2 On this window it's possible to choose the folder for saving the program files.

7.3 Click on Browse to select a different folder from the default one to save the files. Click on "next" to continue the process.



7.4. Finishing Installation

To finish the installation, just click on "Finish". You are now ready to download your measurements and create your Vibrate reports.

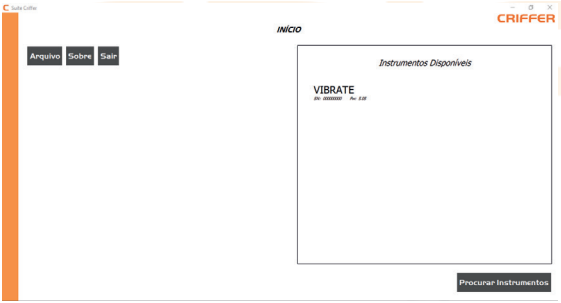


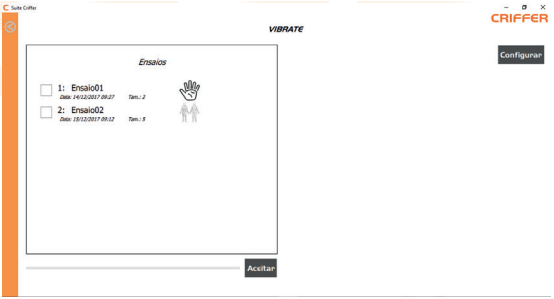
8. Operating Criffer Suíte

On the software home screen, you have the option of File, About, Exit and Search for Instruments.

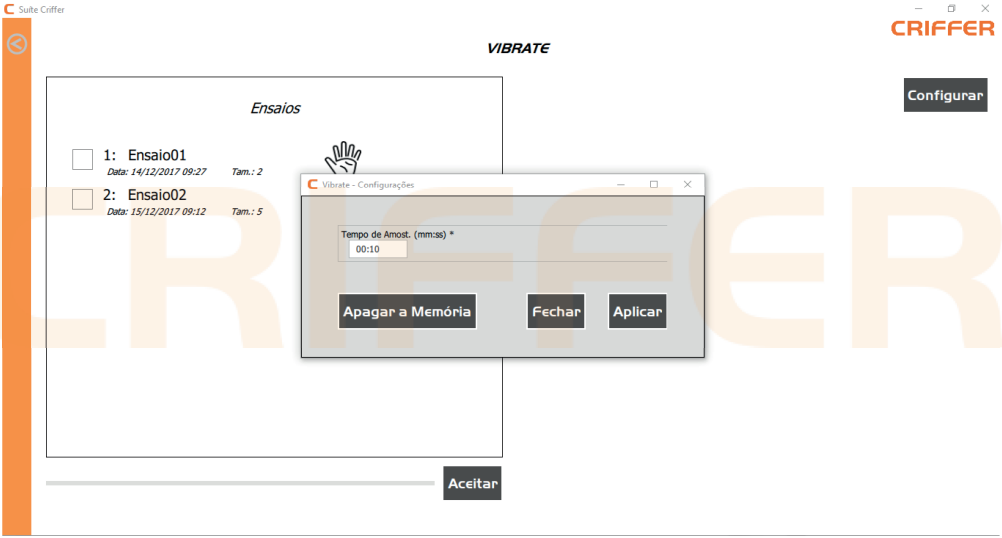
Click on the 'Search for Instruments', in the 'Available Instruments' field it will display the Vibrate connected to the computer. It also displays the serial number and firmware version. Select the instrument connected to the computer with a click. A new window will appear with the tests stored in memory and the button to configure Vibrate.

*Vibrate must be turned on to download the measurements.



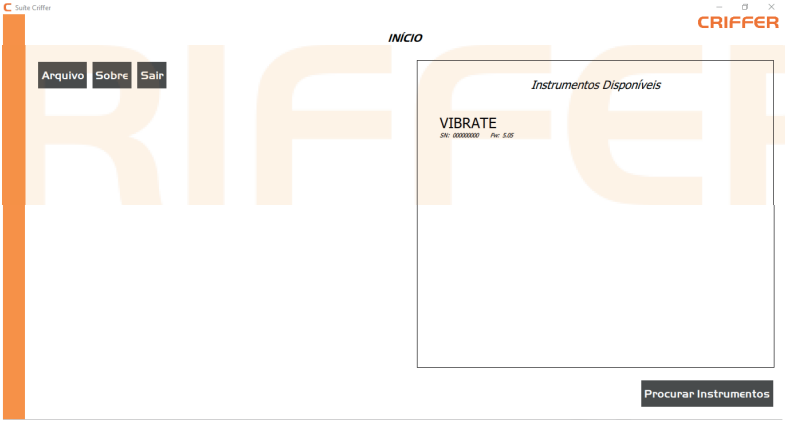


Click on 'Configure' to access the window where you can configure data logging intervals and clear memory.

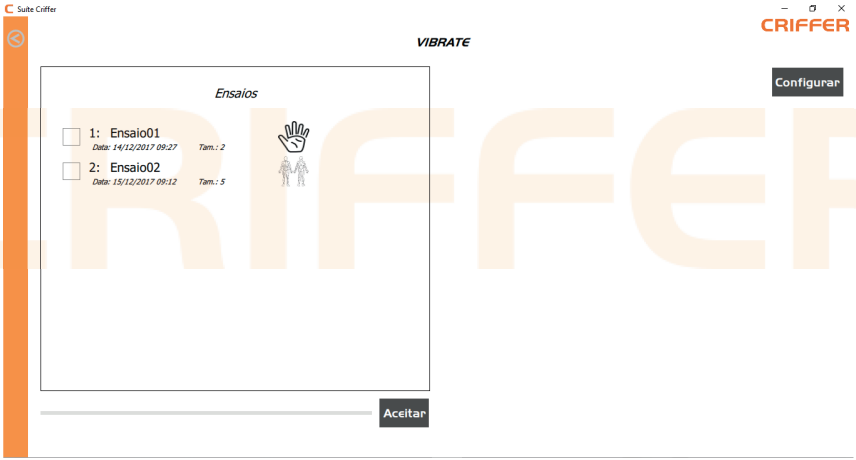


9. Downloading an assessment

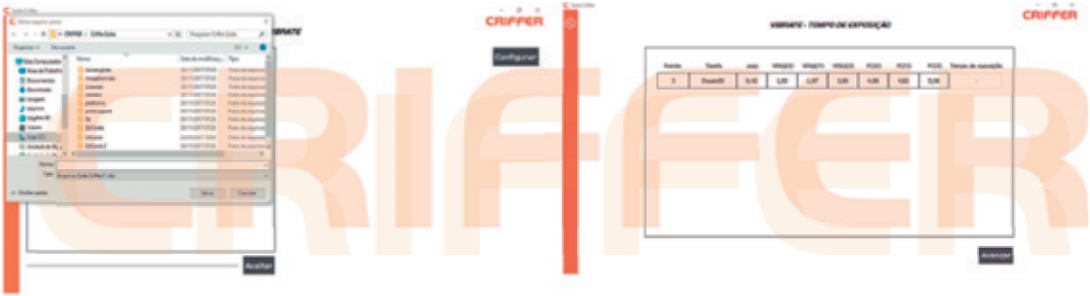
Click on the 'Search for Instruments' button, on the 'Available Instruments' field it will display the Vibrate connected to the computer, the serial number and firmware version.



Select the instrument with one click. It will display a new window with the assessments stored in memory. To save the assessment, select the one you want and then click on 'Accept'.

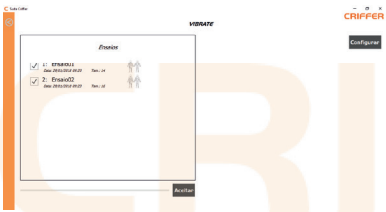


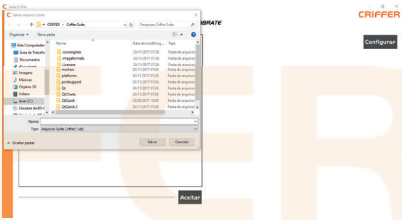
Then a window will open to select the location where you want to save the measurement. After selecting the destination folder click on save, it will ask you to inform the time of exposure to vibration. Click on 'next' to proceed, it will display the measured values.

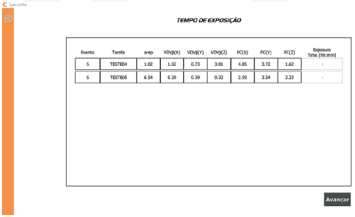


* The Vibrate software makes it possible to combine assessments of different datalogs.

To join two or more measuring components of the same accelerometer, mark the ones you want and then click on 'Accept'. A window will open to select the folder of destination. Select the destination folder and click on save, another window will be displayed for filling the exposure time of each component. To display the results, click on next.







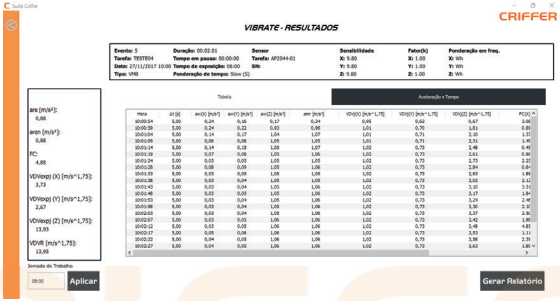
Evento	Tarefa	avep	VDx(g)(X)	VDx(g)(Y)	VDx(g)(Z)	FC(X)	FC(Y)	FC(Z)	Exposure Time (hh:mm)
5	TEST004	1.02	1.02	0.73	3.46	4.68	3.72	1.42	-
5	TEST005	6.54	8.29	0.39	0.32	2.99	3.54	3.23	-

10. Analysing assessment data

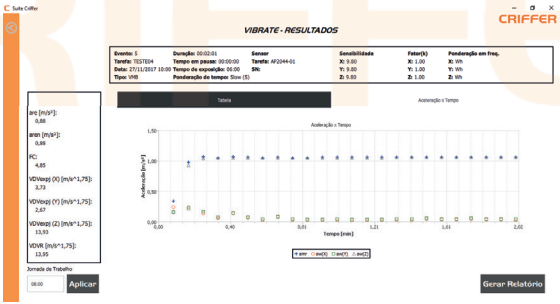
After saving the measurement on the computer, the software will display the screen below for analysis of the data collected during measurement. The header will display the event number, task name, date of the execution, sensor type, measuring time, paused time, exposure time, time weighting, sensor's name, serial number, sensitivity, K factor and weighting of axes.

The measurement results are displayed on the left side of the software, which are Are, Aren, FC, VDVexp (X), VDVexp (Y), VDVexp (Z) and the VDVR. It also has a field to inform the workday of the worker evaluated.

In the central part of the screen are displayed the time of each record, the recording interval, the acceleration of each axis, the resulting average acceleration, the VDV per axis, the crest factor per axis and the acceleration x time graph.

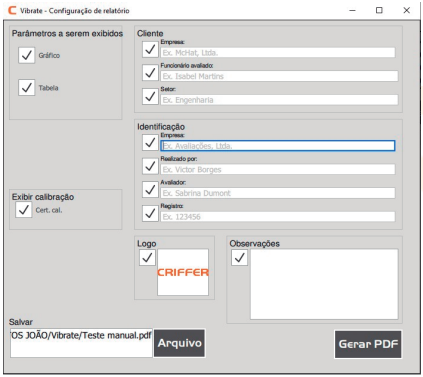


Hora	Δt [s]	ax(t) [m/s²]	ay(t) [m/s²]	az(t) [m/s²]	aver [m/s²]	VDV(t) [m/s^1,75]	VDV(t) [m/s^1,75]	VDV(t) [m/s^1,75]	FC(t)
10:00:54	5,00	0,24	0,16	0,17	0,34	0,95	0,62	0,67	2,00
10:00:59	5,00	0,24	0,22	0,03	0,36	1,01	0,70	1,01	2,02
10:01:04	5,00	0,14	0,17	1,04	1,07	1,01	0,71	2,10	1,37
10:01:09	5,00	0,06	0,08	1,05	1,05	1,01	0,71	3,51	1,49
10:01:14	5,00	0,14	0,18	1,05	1,07	1,02	0,73	2,48	0,48
10:01:19	5,00	0,07	0,08	1,05	1,06	1,02	0,73	2,61	0,90
10:01:24	5,00	0,03	0,05	1,05	1,05	1,02	0,73	2,73	2,21
10:01:28	5,00	0,08	0,05	1,05	1,06	1,02	0,73	2,84	0,64
10:01:33	5,00	0,03	0,08	1,05	1,05	1,02	0,73	2,93	1,88
10:01:38	5,00	0,03	0,04	1,05	1,05	1,02	0,73	3,02	2,12
10:01:43	5,00	0,03	0,04	1,05	1,06	1,02	0,73	3,10	2,51
10:01:48	5,00	0,03	0,05	1,05	1,06	1,02	0,73	3,17	1,84
10:01:53	5,00	0,03	0,04	1,05	1,06	1,02	0,73	3,24	2,40
10:01:58	5,00	0,03	0,04	1,05	1,06	1,02	0,73	3,30	2,32
10:02:03	5,00	0,03	0,04	1,05	1,06	1,02	0,73	3,37	2,36
10:02:08	5,00	0,03	0,05	1,05	1,06	1,02	0,73	3,42	2,81
10:02:13	5,00	0,03	0,05	1,06	1,06	1,02	0,73	3,48	4,81
10:02:17	5,00	0,05	0,06	1,06	1,06	1,02	0,73	3,53	1,11
10:02:22	5,00	0,04	0,05	1,06	1,06	1,02	0,73	3,58	2,33
10:02:27	5,00	0,04	0,05	1,06	1,06	1,02	0,73	3,62	1,85



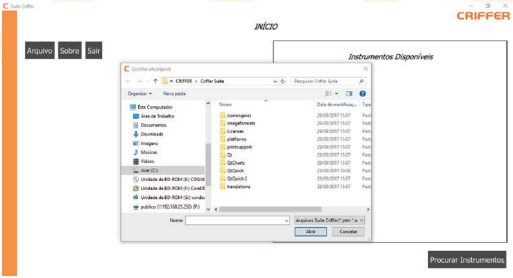
II. Report generation

To generate a PDF report, click on 'Generate report' button. It will display a window to configure the customizable report information. This window (see image below) allows you to fill the information you need to show on your report, such as parameters, certificate of calibrations, client (company's name, worker's name and department), identification (company's name, performed by, evaluator and registry number), logo and observations.



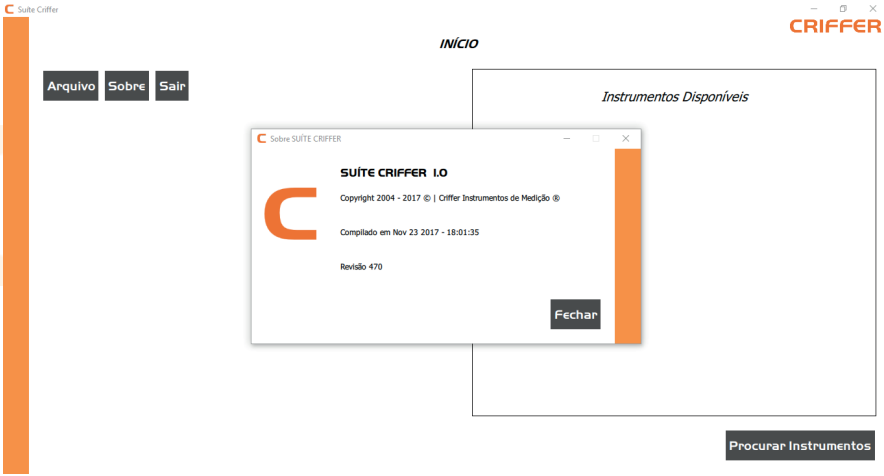
12. Opening a saved assessment

To open a measurement saved on the computer, click on ‘Open’ and select the .vib file you want to view.



13. About

It displays the software version information.



13. Maintenance

Periodically clean the Protemp 4 cabinet with a dry cloth and neutral detergent. Do not use abrasive products or solvents.

Check the electromechanical integrity of the Vibrate as well as the consistency on the instrument's response. (If it is found any abnormality on its operation contact our Technical Support on the phone +55 51 3081-6675 or call authorized distributor in your region).

It is advisable that the periodicity of the calibration certification is annual. For more information about the service, contact Criffer by sending an e-mail to sales@criffer.com or call authorized distributor in your region.

14. Warranty term

This product has 1 (one) year of warranty, which can be extended up to 3 (three) years, check the extended warranty certificated.

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