ENGLISH

Vitality Health Check

Manual
DataReader Software V 1.5
VHC-Reader

Contents

1 General information 3
2 Installation 4
3 Concept 5
4 Connecting the VHC-Reader 6
5 General software settings 7
5.1 Setting date and time 7
5.2 Menu 7
5.3 Setup 8
5.4 Language 10
5.5 Info 11
5.6 Information on bottom bar 11
6 Reading data from memory 12
6.1 Adding a user comment 13
7 Remote measurement 14
7.1 Manual measurement 14
7.2 Timer measurement 16
8 Information 17

1 General information

The Vitality Health Check Health Reader (VHC-Reader) is a mobile measuring device for qualitative, semi quantitative and quantitative evaluation of diagnostic rapid tests (lateral flow assays). Being a mobile platform, the VHC-Reader offers an internal memory to safe a large number of measurement results.

In order to extract the measurement data from the VHC-Reader the *DataReader Software* was developed. Using this program it is possible to read every saved measurement, to transfer it to a pc and general data management functions. Furthermore the software allows remote measurements.

The software provides user-friendly setup wizard and is easy to use.

2 Installation

System requirements:

Operating system:	Windows 7 (SP1), Windows 8
Processor:	Pentium III or higher, AMD Athlon XP or higher
Main memory:	Min. 512 MB (min. 1 GB for Vista and Windows 7)
Hard disk:	Min. 1 GB free
Screen resolution:	Min. 1366 x 768

If not already installed on the PC it may be necessary to install the FTDI driver to establish a connection between reader and PC. You can find out if the driver is installed by connecting the switched-on reader with the PC via provided USB cable. If the PC recognizes the device, the driver is already installed.

If the PC does not recognize it please visit the following website to download the required driver according to your system characteristics:
http://www.ftdichip.com/Drivers/VCP.htm

Please disconnect the device from the PC for the driver installation and do not connect the device to the computer again before the installation of the driver is complete.

After the installation has been successful the program can be started and the device can now be connected to the computer.

To run the program the file

VHC-Reader DataReader V1.5.xxxx – Setup.exe

must be run on the computer. The connection of the VHC-Reader is only possible by using the provided USB cable. If the device is still switched off at that moment it can be switched on now.

The most recent version of the DataReader Software for the VHC-Reader can allways be found on our webpage http://www.vitality-health-check.com/service

3 Concept

After starting the software the window shown in figure 1 can be seen.

Figure 1: DataReader software

The main software consists out of one tab. The major functions can be selected directly by pressing one of the four buttons. All results will be presented in the main window as well as the results done using the remote measurement function. Additionally the top part of the software holds a menu bar and information about the VHC-Reader status. The bottom left side of the software window informs about the current status of the software.

4 Connecting the VHC-Reader

In order to extract data from the VHC-Readers memory or to perform remote measurements with the *DataReader Software* the VHC-Reader has to be connected to the software first. Switch on the VHC-Reader and connect it to the PC via the provided USB cable. As soon as the VHC-Reader is ready for operation the software will automatically try to connect to the VHC-Reader. This automated process is preconfigured after installing the software and can be switched off later.

If the option is turned off, it is also possible to connect the VHC-Reader manually. Therefore choose a VHC-Reader from the drop down menu at the top left side and click on “Connect”.

Figure 2: Drop down list

Figure 3: VHC-Reader is connected successfully

The VHC-Reader is connected successfully if the serial number in the drop down menu on the left top side fades out, the serial number and firmware version is shown on the top right side, if date and time settings are highlighted either by green or red and if the button besides the drop down menu will show “Disconnect” (Figure 2).

5 General software settings

General software settings are placed in the top part of the software.

5.1 Setting date and time

After connecting the VHC-Reader to the computer, the software automatically checks the internal clock of the VHC-Reader and compares it with the time of the computer the VHC-Reader is connected to. Incorrect clock settings are indicated by a red frame which can be seen on the top right side of "Figure 4: Set system time", whereas correct clock settings would be indicated by a green frame.

Figure 4: Set system time

To set the date and time move the cursor above the time information and right click into the information. The option to set the system time is presented. This will automatically set the system time of the VHC-Reader according to the time of the PC. It is also possible to set the system time manually by using the drop down menus which can be selected by clicking the buttons integrated in the frame.

5.2 Menu

When clicking on "Menu" the following window will appear.

Figure 5: Menu

The VHC-Reader needs to be connected to the software, turned on and saved measurements should have been read to have all options selectable.

Options available are:

- **Delete measurement list:** By choosing this option all entries in the current list will be deleted.
- **Save data to file:** By choosing this option a window will open which allows selecting a location on the local file system to save the measurement results as a *.tsv file (tabular separated values). Such a file can be directly opened with MS Excel; all information will be separated into different columns.
- **Load data from file:** By choosing this option a previously saved measurement list can be reloaded. The list has to be a *.tsv file.
- **Format VHC-Reader database:** By choosing this option the VHC-Reader's database/memory will be formatted. All data will be lost.

5.3 Setup

When clicking on Setup the following window will appear.

Figure 6: Setup

Any option can be activated by clicking on it. Activated options are indicted by check marks [✔]. Options available are:

- **Set image position:** When doing a manual measurement by choosing "Start measurement" from the main window, this option determines where to place the picture of the 2D volume diagram in conjunction with the result list. Three different locations are selectable, it is also possible to deactivate this information by choosing "Do not display image".

Figure 7: Set image position options

Possible image positions are the following.

Figure 8: Image positions; Left, Full width and Right

- **Data management:** This option allows choosing how the DataReader software will proceed with new data either just measured or downloaded, if there is already data in the list.

Figure 9: Data management

The following options can be selected:

- **Overwrite existing data:** By choosing this option all entries in the list will be deleted when adding new data either by doing a remote measurement or by adding data from another VHC-Reader.
- **Add new data to existing:** By choosing this option all entries in the list will remain when adding new data either by doing a remote measurement or by adding data from another VHC-Reader.
- **Always ask:** The user will always be asked how to manage new data. The user can choose between adding the data and overwriting the existing data.

- **Auto connect:** By choosing this option the user can decide whether the software shall automatically connect to the VHC-Reader or if the connection shall be done manually.
- **Shutdown VHC-Reader on disconnect:** By choosing this option the VHC-Reader gets deactivated when being disconnected from the software.
- **Load last used file on start:** By choosing this option the recently saved measurement list will be restored when restarting the software.

- **Select measurement source:** By choosing this option the source for loading the test-specific configuration for a remote measurement can be selected.

Figure 10: Select measurement source options

The following options can be selected:

- **VHC-Reader:** The test-specific configuration will be loaded through the VHC-Reader by using an RFID card.
- **Local file system:** The configuration must be selected from the local file system.
- **Select on start of measurement:** The user will always be asked when a measurement is started which of the above option they want to choose.

5.4 Language

When clicking on Language the following window will appear.

Figure 11: Language

This feature will allow changing the language of the software. Currently we provide five languages: English, German. French, Spanish and Russian.

5.5 Info

When clicking on Info the following window will appear.

Figure 12: Info

This feature holds two options: **Version** and **License Manager**.

By choosing **version**, the software shows the current version including the confirmation of validity and the information how long it will be valid.

Compared to the configuration software the DataReader is not PC dependant. Nevertheless a license file is requested to operate the software. By clicking on “Info” and “Version” the status of validity will be shown.

5.6 Information on bottom bar

The bottom bar of the software holds information about the status of the software, e.g. if it is transmitting data or measuring.

Figure 13: Bottom bar information

6 Reading data from memory

To read measurement data from the VHC-Reader the device has to be successfully connected to the software. By clicking the button “Read data from VHC-Reader” the software will read the memory and display every saved measurement result.

Figure 14: Saved measurement data

The result display is separated into two parts. The first part, left window, lists all measurements using the information defined in the configuration. The list contains information about the Test ID, which is a unique number added by the VHC-Reader to each measurement result, Test name, Lot number, Distributor/Manufacturer and Date/Time. The sixth column is meant for “User comments” allowing adding a comment manually. This can be done with every entry listed. It is possible to sort the entries in alphabetical or value dependant matter. This can be done with every column.

By clicking on one of the entries, the actual result values will be presented in the second list on the right side of the window. This is necessary since each measurement can include up to ten different results. The second list will show the Result name, the actual Result, the Result unit and the Class if defined in the configuration file.

Figure 15: Result details; result values

It is possible to sort the entries in alphabetical or value dependant matter. This can be done with every column.

6.1 Adding a user comment

To add a user comment double click into the measurement list on the entry intended to add a comment. A window will open where the comment can be added.

Figure 14: Adding a user comment

After hitting “OK” the comment will be automatically added to the list.

All comments added to the measurements are solely in the user’s responsibility.

7 Remote measurement

The DataReader Software allows doing a remote measurement, either a manual one or a timer measurement.

7.1 Manual measurement

In order to start a manual remote measurement just click on the "Start measurement" button, besides the button "Read data from VHC-Reader".

If the option is activated to select the measurement source of the test-specific configuration on start of measurement (Setup -> Select measurement source -> Select on start of measurement ✔ ; 5.3 Setup), the first window will ask to select the source for loading the configuration.

Figure 15: Select source

If the option is activated to always ask if new measurement results shall be added to the list or overwrite the list (Setup -> Data management -> Always ask ✔ ; 5.3 Setup), the next information window presented will ask how to process the measurement result considering the list already includes data.

Figure 16: Processing question

If *"Load from file"* *or* *"Setup / Select measurement source /* Local file system*"* was selected the third step will be a browser window to select the configuration for measurement from the local system. Put the test in position for measurement below the VHC-Reader and select the configuration; the measurement will be started immediately after selecting the configuration.

Be aware if the overwriting function is activated the already listed data gets lost if not saved as soon as the new measurement starts. Make sure to have the data saved.

If *"Load through device* <u>*or*</u> *"Setup / Select measurement source /* VHC-Reader*"* was selected instead the third window will ask to put the VHC-Reader above the test and to hold the RFID tag above the VHC-Reader.

If the options "Always ask" and "Select on start of measurement" are disabled this information will be the first one when selecting a manual remote measurement.

Figure 17: Remote measuring instructions

The RFID information will be loaded into the access memory of the VHC-Reader. Every current condition is also shown in the display of the VHC-Reader, in this case "RFID".

After the RFID information has been loaded the VHC-Reader starts the measurement. This is indicated by the following information:

Figure 18: Measurement in progress

When the measurement is done, the results will be added to the list and the 2D volume diagram will be presented at the position determined in 5.3 Setup.

All information concerning the demo measurement can be seen, manufacturer information, measurement result values and the 2D volume diagram.

The data can now be saved to a file. The file will be in *.tsv format and will include the information of the 2D volume diagram as intensity values per pixel. The *.tsv file can be opened with Excel and the data can be used to redraw the 2D volume diagram.

Figure 21: Redrawn 2D volume diagram using the *.tsv values (x-axis has been scaled up)

This feature can help to surveil lot specific changes by a superposition of multiple graphs.

7.2 Timer measurement

In addition to the manual remote measurement it is possible to perform a timed remote measurement if defined in the measurement configuration. The timer measurement is meant for tests which require a specific incubation time before the test lines have fully developed.

In order to start a timer measurement click on the button “Timer measure”. The procedure of measuring equals the one for the manual measurement. Please refer to 7.1 Manual measurement to get to know the procedure.

After the test configuration has been loaded the software opens a window to display the countdown.

Figure 22: Count down of the incubation time until automatic evaluation

After the countdown has run off the measurement starts which will be indicated as shown in Figure 18: Measurement in progress. After the measurement is done the results will be displayed and can be processed like the ones from a manual measurement.

8 Information

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If there are questions or problems of any kind that cannot be solved with the aid of this manual, please refer to our website for the Vitality Health Check or contact us directly.

http://www.vitality-health-check.com/service